DOCUMENT RESUME

ED 234 083 TM 830 578

AUTHOR	Pruett, Kathy E.
TITLE	California Achievement Tests: A Practical Guide for Using and Interpreting the Results.
INSTITUTION	Memphis City School System, Tenn.
PUB DATE	82
NOTE	116p.; This paper received the 1983 American Educational Research Association Division H Award for best guide to interpretation and use of test results.
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	Educational Planning; Scoring; *Testing Programs; *Test Interpretation; *Test Manuals; Test Results; *Test Use
IDENTIFIERS	*California Achievement Tests; Memphis City Schools TN

ABSTRACT

The booklet was designed to help each recipient of the California Achievement Test (CAT) reports to understand the general format of the reports, the abbreviations and symbols used, and the types of scores presented. It was also intended to assist in interpreting CAT results and using these results at each level of the educational process to best benefit the students of the Memphis City Schools. A sample of each basic CAT report which is sent to school system personnel is included in this booklet. The contents discuss the format, interpretation and use of (1) the grouped Item Response Record, (2) the Objective Mastery Report (OMR), (3) CAT Results by Class, and (4) the OMR Season Summary. The use, advantage, and disadvantage of raw scores, percentile ranks, and stanines reported on the CAT, as well as, the Class Management Guide, are discussed. (PN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Kathy Prewett

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED234083

TM 830 578

CALIFORNIA ACHIEVEMENT TESTS

A Practical Guide for Using and Interpreting The Results

Division of Research Services
Department of Pupil Services
Memphis City Schools • Memphis, Tennessee

Memphis City Schools

CALIFORNIA ACHIEVEMENT TESTS

A Practical Guide for Using and Interpreting the Results

W. W. Herenton, Ph.D., Superintendent

Johnnie B. Watson, Assistant Superintendent
Department of Pupil Services

O. Z. Stephens, Ed.D., Director
Division of Research Services

Memphis City Schools
Memphis, Tennessee 38112

Prepared by:
Kathy E. Pruett, Ed.D.
Research Consultant

1982

TABLE OF CONTENTS

	Page
List of Tables	v
Foreword	ix
Introduction	1
Purposes	1
Grouped Item Response Record (GIRR)	
Format of the GIRR	2
Interpreting and Using the GIRR	6
Determining strengths and weaknesses for individual students	6
Determining strengths and weaknesses for the class section	7
Grouping students within the class	7
Prioritizing instructional activities	7
Evaluating the progress of students	7
Scores Reported on the CAT	8
Raw Scores	
Uses of raw scores	8
Advantages of raw scores	8
Disadvantages of raw scores	8
Percentile Ranks	
Uses of percentile ranks	9
Advantages of percentile ranks	11
Disadvantages of percentile ranks	11
Stanines	
Uses of stanines	12
Advantages of stanines	15
Disadvantages of stanines	15

TABLE OF CONTENTS (Continued)

Page

Grade Equivalents

Uses of grade equivalents 15

Advantages of grade equivalents 19

Disadvantages of grade equivalents 19

Objective Mastery Report (OMR)

Format of the OMR 21

Interpreting and Using the OMR 25

Determining broad strengths and weaknesses for individuals 25

Determining broad strengths and weaknesses for a class 25

Grouping students with common needs 26

Prioritizing instructional objectives 26

Evaluating the progress of students 26

California Achievement Test Results by Class

Format of the Results by Class Report 40

Interpreting and Using the Results by Class Report 40

Objective Mastery Report (OMR) Season Summary

Format of the OMR - Season Summary 43

Interpreting and Using the OMR - Season Summary 43

Class Management Guide 44

Appendix A 45

Appendix B 69

Appendix C 81

Appendix D 99

LIST OF TABLES

Table		Page
1	Sample of Grouped Item Response Record	3
2	Sample of Grouped Item Response Record - Total Page	4
3	Key to Sample of Grouped Item Response Record	5
4	Percent of Students in Each Stanine and Definition of Each Stanine	12
5	Number of Students in a Normal Distribution in Each Stanine for Classes of Size 20 to 40	14
6	Lowest and Highest Possible Grade Equivalents for Each Subtest, Level, and Form of the CAT	18
7	Sample of Objective Mastery Report	22
8	Key to Sample of Objective Mastery Report	23
9	Mastery Criterion for Objectives with 4-10 Items	24
10	Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within a Subtest - Levels 11-16, Form C, CAT	28
11	Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within A Subtest - Levels 17-19, Form C, CAT	29
12	Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within a Subtest - Levels 13-16, Form D, CAT	30
13	Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within A Subtest - Levels 17-19, Form D, CAT	31
14	Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within A Subtest - Levels 11-16, Form C, CAT	32
15	Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within A Subtest - Levels 17-19, Form C, CAT	33
16	Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within A Subtest - Levels 13-16, Form D, CAT	34
17	Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within A Subtest - Levels 17-19, Form D, CAT	35
18	Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within A Subtest - Levels 11-16, Form C, CAT	36

LIST OF TABLES (Continued)

Table		Page
19	Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within A Subtest - Levels 17-19, Form C, CAT	37
20	Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within A Subtest - Levels 13-16, Form D, CAT	38
21	Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within A Subtest - Levels 17-19, Form D, CAT	39
22	Sample of California Achievement Test Results by Class	41
23	Key to Sample of California Achievement Test Results by Class	42
24	Sample of Objective Mastery Report Season Summary	43
25	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 10 - Form C - Grade K	47
26	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 11 - Form C - Grade 1	48
27	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 12 - Form C - Grade 2	50
28	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 13 - Form C - Grade 3	52
29	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 14 - Form C - Grade 4	54
30	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 15 - Form C - Grade 5	56
31	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 16 - Form C - Grade 6	58
32	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 17 - Form C - Grade 7	60
33	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form C - Grade 8	62

LIST OF TABLES (Continued)

Table		Page
34	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form C - Grade 9	64
35	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 19 - Form C - Grade 10	66
36	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 10 - Form C - Grade K	71
37	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 11 - Form C - Grade 1	71
38	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 12 - Form C - Grade 2	72
39	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 13 - Form C - Grade 3	73
40	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 14 - Form C - Grade 4	74
41	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 15 - Form C - Grade 5	75
42	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 16 - Form C - Grade 6	76
43	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 17 - Form C - Grade 7	77
44	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form C - Grade 8	78
45	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form C - Grade 9	79
46	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 19 - Form C - Grade 10	80

LIST OF TABLES (Continued)

Table		Page
47	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 13 - Form D - Grade 3	83
48	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 14 - Form D - Grade 4	85
49	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 15 - Form D - Grade 5	87
50	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 16 - Form D - Grade 6	89
51	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 17 - Form D - Grade 7	91
52	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form D - Grade 8	93
53	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form D - Grade 9	95
54	Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents - Level 19 - Form D - Grade 10	97
55	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 13 - Form D - Grade 3	101
56	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 14 - Form D - Grade 4	102
57	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 15 - Form D - Grade 5	103
58	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 16 - Form D - Grade 6	104
59	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 17 - Form D - Grade 7	105
60	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form D - Grade 8	106
61	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 18 - Form D - Grade 9	107
62	Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents - Level 19 - Form D - Grade 10	108

FOREWORD

Teachers and other school system personnel are many times confronted with California Achievement Test data without really knowing or understanding the meaning or uses of the data. We have seen the need for more accessible information about our achievement testing program (CAT) — most particularly interpretation of test results. Thus, the manual — "California Achievement Tests: A Practical Guide for Using and Interpreting the Results."

We hope we have presented enough information in a straightforward manner to prevent your feeling overwhelmed by the technical concepts, while at the same time providing adequate information and material for effective comprehension and utilization of the data. Our efforts are directed toward helping the test user understand and use test data for administrative, instructional, and guidance purposes.

O. Z. Stephens, Director
Division of Research Services
Memphis City Schools

CALIFORNIA ACHIEVEMENT TESTS

A Practical Guide for Using and Interpreting the Results

Introduction

The California Achievement Tests (CAT) are administered to all Memphis City Schools' students in grades 1-10 each fall and to students in grades K-10 each spring. After each administration of the test, different types of CAT reports are sent to many groups of school system personnel. Personnel who receive CAT reports include the Superintendent, area office personnel, Department of Curriculum and Instruction personnel, principals, and teachers. It is hoped that the best possible reporting format is used in providing these test results. It is our goal in the Division of Research Services to provide accurate, timely, understandable, and useable CAT reports to each level of school system personnel. Each type of CAT report is intended to assist in focusing the instructional efforts of system personnel at all levels of the educational process.

Purposes

The purposes of this booklet are two-fold. First, the booklet was designed to help each recipient of CAT reports to understand the general format of the reports, the abbreviations and symbols used, and the types of scores presented. Secondly, this booklet was intended to assist in interpreting CAT results and using these results at each level of the educational process to best benefit the students of the Memphis City Schools. A sample of each basic CAT report which is sent to school system personnel is included in this booklet.

CAT results can be useful at all levels of the educational process.

The test results can be used to:

1. help assess student needs;
2. help determine instructional goals and establish priorities;
3. assist in planning individualized instructional programs; and
4. help in monitoring and evaluating the progress of students.

It is stressed that CAT results can help in these areas of instruction. The CAT is only one of many tools which can, if used properly, assist school system personnel in providing the maximum educational opportunities for students. Other tools which are available include teacher-made tests, questionnaires, checklists, other standardized tests, and professional observation.

By knowing as much as possible about the CAT reports, you will find that these reports can be of invaluable assistance to you in focusing your instructional efforts. **Remember, let the CAT work for you.**

Format of the GIRR

The GIRR was designed to provide test item information for individual students and for the class. It is the basic report for the teacher's use. Results for each subtest of the CAT appear on a separate page of the GIRR. These subtest results are summarized on the total page (last page) of the GIRR.

Table 1 is a sample of a subtest page from the GIRR. This sample of the GIRR shows the identifying information in the upper left hand corner of the page. The location, grade, section, number of students tested, level and form of the CAT administered, and the subtest are the identifying elements shown for grades K-6. For grades 7-10, the same identifying elements are shown, except the section designation is replaced with the **number assigned to the language arts or mathematics** teacher and the **period** the class is taught. (Language arts teachers in grades 7-10 receive GIRR reports for all CAT subtests except the mathematics subtests. Mathematics teachers in grades 7-10 receive GIRR reports for only the mathematics subtests.)

Students' names are listed across the top of the report. Responses to each test item are printed in the column under each student's name. Those items the student answered correctly are shown with a + symbol; those answered incorrectly are shown with a − symbol; and those items omitted are left blank on the report.

Listed below the identifying elements on the left hand side of the page are the objective numbers. Beside each objective number is the objective descriptor. Indented under each objective are the items and item descriptors which compose that objective. The percent right (PCT RIGHT) columns show the percent of students who obtained the correct answer in each of three groups; (1) the entire school system (LC), (2) the national norm group (NT), and (3) the class section (SEC).

The raw score, percentile rank, stanine, and grade equivalent are shown for each student at the bottom of the GIRR subtest page. Also recorded on each GIRR subtest page are the mean raw scores and corresponding percentile ranks, stanines, and grade equivalents for the class section and for the school.

Table 2 is a sample of the GIRR total page. The same identifying elements appear in the upper left hand corner of the total page as on the subtest pages. The total pages for Levels 12-19 show each student's raw score, percentile rank, stanine, and grade equivalent for Total Reading, Total Language, Total Mathematics, and Total Battery. (Different subtests are included for Levels 10 and 11, hence these two levels have slightly different total pages.) Mean raw scores and corresponding percentile ranks, stanines, and grade equivalents are also shown for the section and for the school in each of the four "total" areas. (Note that Table 2 shows only a portion of the GIRR total page.)

Table 3 is a key to the sample pages of the GIRR shown in Tables 1 and 2. The definitions shown in Table 3 are provided to clarify the information shown on the GIRR.

Table 1
Sample of Grouped Item Response Record

(1) NUMBER OF STUDENTS TESTED

LOC
GRADE 04
SECTION 03
STUDENTS 04

CALIFORNIA ACH TEST
LEVEL 14 FORM C

(2) SUBTEST

SUBTEST 04
LANGUAGE MECHANICS

(3) OBJECTIVE NUMBER

(4) OBJECTIVE DESCRIPTOR

(5) ITEM NUMBER

(6) ITEM DESCRIPTOR

	PCT. RIGHT LC	NT	SEC	A	B	C	D	
48 CAP-I/PROPER NOUN/								
5 Pronoun I	75		100	+	+	+	+	
2 Calendar Reference	77		75	+	–	+	+	
4 Geographical Name	75	79	100	+	+	+	+	
7 Personal Name	71	78	100	+	+	+	+	
8 Proper Adjective	45	53	50	+	–	+	–	
50 CAP-BEGIN WDS/TITLES								
1 Beginning Word	84	85	100	+	+	+	+	
6 Beginning Word	53	59	75	+	+	–	+	
10 Beginning Word	25	32	25	+	–	–	–	
9 Title	30	41	00	–	–	–	–	
51 PUNCT-END MARKS								
11 Period	75	79	100	+	+	+	+	
15 Question Mark	65	71	100	+	+	+	+	
22 Question Mark	61	70	100	+	+	+	+	
18 Exclamation Point	41	51	25	–	+	–	–	
53 PUNCT-COMMA								
12 Date	53	47	100	+	+	+	+	
13 Introductory Word	21	30	50	–	+	+	–	
17 Quotation	27	36	25	–	–	+	–	
24 Series	27	34	50	+	–	+	–	
25 City/State	20	23	50	+	+	–	–	
54 PUNCT-QUOTAT MARKS								
19 Undivided	23	38	25	–	–	–	+	
23 Undivided	26	43	00	–	–	–	–	
14 Divided	16	26	25	–	–	–	+	
25 Divided	16	29	00	–	–	–	–	
20 Title of Shrt Work	25	39	25	+	–	–	–	
CORRECT SENTENCES								
3	74	79	100	+	+	+	+	
16	51	51	75	–	+	+	+	
RAW SCORE				16	14	15	14	
PERCENTILE RANK				71	57	64	57	
STANINE				6	5	6	5	
GRADE EQUIVALENT				5.0	4.4	4.6	4.4	

A B C D
D U O A
A T W W
I L A S
R E N O
R N
T D
H K A M
O I V A

PERCENT OF STUDENTS WITH RIGHT ANSWER IN:

(7) THE GRADE FOR THE MCS

(8) THE NATIONAL NORM GROUP

(9) THE SECTION

(10) CORRECT RESPONSE (+)

(11) INCORRECT RESPONSE (–)

(12) NO RESPONSE (BLANK)

(13) RAW SCORE

(14) PERCENTILE RANK

(15) STANINE

(16) GRADE EQUIVALENT

(17) SECTION MEANS

Raw Score	15
Percentile Rank	64
Stanine	6
Grade Equivalent	4.6

(18) SCHOOL MEANS

Raw Score	12
Percentile Rank	42
Stanine	5
Grade Equivalent	3.7

Table 2

Sample of Grouped Item Response Record - Total Page

LOC

GRADE 04 A B C D

D U O A

SECTION 03 A T W W

I L A S

STUDENTS 04 R E N O

CALIFORNIA ACH TEST R N

T D

LEVEL 14 FORM C H K A M

(19) TOTAL PAGE O I V A

TOTAL READING

RAW	51		62	
SCORE		47		23
PERCENTILE RANK	74	68	92	25
STANINE	6	6	8	4
GRADE	5.2		6.7	
EQUIVALENT		4.8		3.3

SECTION MEANS		SCHOOL MEANS	
RAW SCORE	46	RAW SCORE	34
PERCENTILE RANK	66	PERCENTILE RANK	45
STANINE	6	STANINE	5
GRADE EQUIVALENT	4.8	GRADE EQUIVALENT	4.0

TOTAL LANGUAGE

RAW	45		44	
SCORE		38		33
	72	50	68	38
		5	6	4
			4.9	
				3.7

14

Table 3

Key to Sample of Grouped Item Response Record

① **NUMBER OF STUDENTS TESTED** — The total number of students tested in the class is indicated.

② **SUBTEST** — The subtest heading identifies the specific subtest for each page.

③ **OBJECTIVE NUMBER** — An objective number identifies each objective.

④ **OBJECTIVE DESCRIPTOR** — An objective descriptor defines a specific skills area and is further identified by its accompanying item descriptors.

⑤ **ITEM NUMBER** — An item number is the actual number of the item on the test. Note that the items which make up an objective are indented under that objective.

⑥ **ITEM DESCRIPTOR** — An item descriptor defines the specific subskill measured by the test item.

PERCENT OF STUDENTS WITH RIGHT ANSWER IN:

⑦ **THE GRADE FOR THE MCS** — This column (LC-LOCAL) shows the percent of all students tested in the grade for the entire school system who answered the item correctly.

⑧ **THE NATIONAL NORM GROUP** — This column (NT-NATIONAL) indicates the percent of students in the national group for that grade who answered the item correctly.

⑨ **THE SECTION** — This column (SEC-SECTION) indicates the percent of students in the class section who answered the item correctly.

⑩ **CORRECT RESPONSE (+)** — Correct responses for individual students are indicated by + marks on the GIRR.

⑪ **INCORRECT RESPONSE (−)** — Incorrect responses are indicated by − marks.

⑫ **NO RESPONSE (BLANK)** — A missing response is indicated by a blank. Blanks occur when the student (a) omitted an item, (b) marked more than one response, or (c) failed to adequately darken the response.

⑬ **RAW SCORE** — A student's raw score equals the total number of correct responses (+).

⑭ **PERCENTILE RANK** — The percentile rank shows for a given student the percent of students in the national norm group whose scores fell below his. For example, if a student's percentile rank is 72, he/she equaled or exceeded 72% of the national norm group.

⑮ **STANINE** — A stanine is a standard score based on a scale of nine equal units ranging from a low of 1 to a high of 9; 5 is average.

⑯ **GRADE EQUIVALENT** — A student's grade equivalent is shown for each subtest. On the CAT, grade equivalents range from 0.1 to 12.9. The numeral to the left of the decimal refers to the grade level, and the numeral to the right of the decimal refers to the school month. September is month 0; October is month 1; November is month 2, etc.

⑰ **SECTION MEANS** — Section means are the average scores for the particular subtest and class section shown at the top of the page.

⑱ **SCHOOL MEANS** — School means are the average scores for the particular subtest for all class sections at the school.

⑲ **TOTAL PAGE** — The total page contains the total scores in the areas of reading, mathematics, language, and total battery. Total raw scores are the sums of the two subtests for each area. (To conserve space on the GIRR, raw scores and grade equivalents for the total areas were printed in an alternating pattern on two lines.)

Interpreting and Using the GIRR

The GIRR, the basic report for the CAT, has a wide variety of uses. The GIRR may be used to:

1. determine the specific skills in which an individual student exhibits strengths or weaknesses;
2. determine the specific skills in which a class exhibits strengths or weaknesses;
3. group students within the class for instructional purposes;
4. prioritize instructional activities; and
5. evaluate the progress of students.

The following information concerning the interpretation of the GIRR is intended to assist the reader in using GIRR results. The GIRR, when used effectively in the classroom, can aid the teacher and other instructional personnel in efficiently focusing instructional efforts.

Determining strengths and weaknesses for individual students. The GIRR is the most finely defined report produced on the CAT. The GIRR shows the items each student (1) omitted, (2) marked correctly, or (3) marked incorrectly. Because the GIRR shows each item on a particular subtest which the student answered correctly (incorrectly), it may be used to indicate the skills in which the student is strong (weak).

For example, Table 1 shows that the first student, whose last name is Adair, answered all items (5, 2, 4, 7, and 8) correctly under Objective 48. Objective 48 of the Language Mechanics Subtest measures capitalization of I, proper nouns, and proper adjectives. By examining the item descriptors for items 5, 2, 4, 7, and 8, it is seen that student Adair correctly answered the items dealing with capitalization of (a) the pronoun I, (b) calendar references, (c) geographical names, (d) personal names, and (e) proper adjectives.

On Objective 50 — Capitalization: Beginning Words and Titles, Adair correctly answered three of the four items. Adair correctly answered items 1, 6, and 10. These three items were items concerning the capitalization of beginning words. Adair incorrectly answered item 9 relative to capitalization of a title.

Continuing this example with student Adair, one item of four, item 18 was answered incorrectly under Objective 51 — Punctuation: End Marks. For Objective 53, two of the five items, items 13 and 17, were answered incorrectly with respect to (1) commas with an introductory word and (2) commas with a quotation. On Objective 54 — Punctuation: Quotation Marks, Adair missed four of the five items.

From this information on the GIRR, we can summarize that student Adair's strengths in Language Mechanics were in the areas of (1) Objective 48 — Capitalization: I, Proper Nouns, and Adjectives and (2) Objective 50 — Capitalization: Beginning Words and Titles. In the area of punctuation, the student exhibited a strength on Objective 51 — Punctuation: End Marks. However, student Adair showed weaknesses on (1) Objective 53 — Punctuation: Comma and (2) Objective 54 — Punctuation: Quotation Marks. Specifically, student Adair missed items in punctuation relative to: (1) the exclamation point, item 18; (2) the comma after an introductory word, item 13; (3) commas with a quotation, item 17; (4) quotation marks in divided quotations, items 14 and 25; and (5) quotation marks in quotations, items 19 and 23.

With this type of information on each student, it is possible to pin-point skills in which the student is weak and needs additional instruction. However, two statements of caution must be expressed.

1. When examining an item which a student answered incorrectly, the percent of students in other groups who answered the item correctly should be considered. For example, Adair missed item 14 under Objective 54. Also, only 16% of the students in Grade 4 of the Memphis City Schools correctly answered this item; 26% of the students in the national norm group correctly answered the item; and 25% of the students in Adair's class section correctly answered the item. From this example, it may be concluded that not many students at this grade level are expected to respond correctly to item 14.
2. The curriculum of the school system should also be considered when using GIRR information to determine weaknesses of a student. If a student missed a particular item or a group of items, it may be because the skill which that item measures has not yet been introduced to the student. If, for example the use of quotation marks is a skill which is not introduced to students until the middle of the fourth grade, then a beginning fourth grade student would not be expected to respond correctly to items measuring this skill.

An individual student's raw score, percentile rank, stanine, and grade equivalent appear on the GIRR for each subtest. Any student's scores may be compared with (1) any other student's scores, (2) the average scores for the section, and (3) the average scores for the school. For example, from Table 1, we see that Adair had a raw score of 16 on the Language Mechanics subtest. This score is the highest in his class section. The section average (mean) was 15 and the school average was 12. Adair's raw score in this subtest was slightly higher than the section average and higher than the school average.

Determining strengths and weaknesses for the class section. The GIRR may be used to assess the strengths and weaknesses on specific skills for the entire class section. Table 1 shows that 100% of the students in the class responded correctly to items, 11, 15, and 22 under Objective 51 — Punctuation: End Marks. Thus, it may be concluded that the class has as strengths punctuation with the end marks, period and question mark. However, only 25% of the students correctly answered item 18 under Objective 51. Therefore, the class appears to be weak in the use of exclamation points. Thus, the section percent on the GIRR may be used to determine the items which were (1) answered incorrectly by a high percentage of students or (2) answered correctly by a high percentage of students in the class.

The class section average (mean) scores shown at the bottom of the GIRR may be compared with the school means on each of the subtests. However, care should be exercised in making these comparisons. There are too many uncontrolled variables which must be considered in comparing class section average scores with the average scores for the school. Some of these variables for a class are: (1) teachers' experience, (2) teachers' educational level, (3) class size, (4) percent average attendance of students, (5) percent of students above age in grade, (6) percent of students new to the school and/or the school system, (7) percent of students receiving supplementary instruction (Title I, resource, etc.), (8) percent of poverty level students, and (9) previous achievement levels of the students.

Additionally, the same types of cautionary statements concerning the strengths and weaknesses of an individual student are also made concerning the strengths and weaknesses of a class.

1. The percent of students who answered an item correctly in the local group and in the national group should be examined when considering the strengths and weaknesses of the class section.
2. When using the percent right for the section or for the local system, the curriculum of the school system should also be considered. If a high percentage of students answered an item incorrectly, it may be because the skill which that item measures is not introduced to the students until a later time in our school system's curriculum.

Grouping students within the class. If it is desirable to group students within a particular class for instructional purposes, the GIRR may prove to be a useful tool. In referring to Table 1, we see that only half of the class may need supplementary instruction on using the comma with introductory words; see item 13 under Objective 53. Students with last names of Adair and Dawson answered item 13 incorrectly. This information may be used to group these two students for extra drill and practice in this specific skill. The other students, Butler and Cowan, answered item 13 correctly, and this may indicate that they only need maintenance level activities.

The type of information given on the GIRR should aid in grouping students within the classroom. Data from other sources such as other standardized tests, classroom tests, homework, professional observation, etc., should also be used in conjunction with CAT results when it is desirable to group students for instructional purposes.

Prioritizing instructional activities. The GIRR may be used to aid instructional personnel in determining the sequence of instructional activities. If learning proper capitalization is an instructional activity for the class shown in Table 1, then the information for Objectives 48 and 50 should be examined. We see that more items were missed in the area of capitalization of beginning words and titles (Objective 50) than in capitalization of I, proper nouns, and proper adjectives (Objective 48). This information may be used to help instructional personnel determine which instructional activities should be taught first and which need emphasis.

The type of information provided by the GIRR is especially helpful in determining priorities when skills must be introduced in a prescribed sequence. For example, if a class section is found to be weak in adding two, one digit numbers, then the addition of two or more two digit numbers might be postponed until the deficiency is corrected.

Evaluating the progress of students. GIRR results from the fall test administration may be compared with results from the spring test. It can be determined if an individual student maintained skills, progressed, or regressed for each item (if the same form of the test is given in the spring as in the fall). The raw scores, percentile ranks, stanines, and grade equivalents for an individual student on a particular subtest may be compared from fall to spring. This information may be coupled with the information about the progress of the class section and the school to help define the student's relative progress.

Other sources of information should be used to evaluate the progress of students. Performance on classroom tests, other standardized tests, homework, etc. are also valuable tools to indicate a student's progress.

Scores Reported on the CAT

There are four scores which are reported on the CAT. These scores are the raw score, percentile rank, stanine, and grade equivalent. Although a definition of each of these scores appears in Table 3, it is hoped that the following information will aid the reader in: (1) expanding the definition of these scores, (2) determining their appropriate uses, and (3) distinguishing their advantages and disadvantages.

Raw Scores

Uses of raw scores. The raw score on the CAT is simply the number of test items a student answered correctly. The raw score is the immediate end-product which results from scoring the test. By itself, the raw score is not meaningful. It cannot stand alone. For example, if a student, Brian, has a raw score of 32 in arithmetic, we do not know what the score means. If the arithmetic test had 40 items on it, then the raw score of 32 might be a very good score. However, if the test had 85 items on it, and if the student was expected to answer the majority of the items correctly, then 32 might be a very poor score. Without some other information, the raw score is of little value.

If raw scores are available for several students who took the same test, then we can compare Brian's scores with the scores of other students. The raw scores for four students who took the same arithmetic test are shown in the following table. These raw scores indicate that in the fall Brian scored higher in arithmetic than either Adam or Carol, and he scored lower than Dianne. By knowing the scores of other students, Brian's raw score assumes new meaning.

Raw scores can also be used to show growth. When the same arithmetic test was given again in the spring to Adam, Brian, Carol, and Dianne, it appears that Brian, Carol, and Dianne are making progress in arithmetic. But, Adam is not making progress.

	Arithmetic Raw Score	
Student	**Fall Testing**	**Spring Testing**
Adam	20	23
Brian	32	59
Carol	21	53
Dianne	47	62

If, in our example, the highest possible score on the arithmetic test is 65, comparisons can be made of each student's raw score with the highest possible score. Brian's spring score of 59 indicates he did very well on the test when compared to the highest possible score of 65. Thus, by knowing the highest possible score, a particular student's raw score assumes new meaning.

If the raw scores in our example are averaged, then Brian's fall score of 32 again assumes more meaning. The average raw score in the fall was 30, and Brian's fall score was a little above average. The average raw score in the spring was about 49, and Brian's spring score was 10 points above average.

Advantages of raw scores. The advantage of the raw score is that it is easy to obtain. On the CAT, the raw score is simply the end-product of the test scoring process.

Disadvantages of raw scores. One disadvantage of the raw score is that if it is used alone, no valid interpretation can be made of it. If the raw score is the only information known, it is practically useless. Other information, such as, the highest possible raw score, the group's average raw score, the raw score of other students, or the lowest or highest score made by the group must be known in order to adequately interpret the raw score.

Another disadvantage of the raw score is that a raw score of size zero does not indicate zero knowledge in the subject area being tested. For example, if a 20 word spelling test is given to a group of seventh graders and one student does not spell any of the words correctly, he receives a raw score of zero. However, this does not mean he has no knowledge of correct spelling. Such words as "cat," "ball," "jump," and "run" would not appear on the seventh grade test. These words do not help the teacher differentiate among the seventh grade students. But the student who received a raw score of zero probably can correctly spell these words and many other words. Hence, a raw score of zero differs from zero knowledge of the subject area by some large, unknown quantity.

Because it is true that absolute zero (or zero knowledge) and a raw score of zero are an unknown distance apart, then the distance between a raw score of 40 and absolute zero is not twice the distance between a raw score of 20 and absolute zero. This leads to another disadvantage of the raw score. Often, it is assumed that a student who receives a raw score of 40 has twice as much knowledge as a student who receives a raw score of 20. However, this assumption can not be made.

Although a test fails to measure absolute zero, this is not as serious a disadvantage as it might appear. It simply means that ratios between raw scores have no meaning in the area being measured. This same concept applies to measuring the temperature of a room with a Fahrenheit thermometer. For example, a room at 90° F. is not twice as warm as a room at 45° F.

Percentile Ranks

Uses of percentile ranks. The percentile rank is a derived score; that is, it is not the direct end-product of scoring a test. On the CAT, the raw score is converted to a percentile rank using conversion tables supplied by the test publisher. To use these conversion tables, the raw score and the time of year the test was administered must be known. As defined in Table 3, the percentile rank* shows for a particular student the percent of students in the national norm group whose scores fell below his. Percentile ranks on the CAT range from a low of 1 to a high of 99, and 50 is average. A percentile rank of 85 for a raw score of 47 means that 85% of the students in the national norm group had raw scores smaller than 47, and only 15% had raw scores larger than 47. Figure 1 shows the relationship between normally distributed raw scores and percentiles. The normal curve shown in Figure 1 is divided into whole standard deviation units to illustrate the relationship between standard deviations and percentiles.

Percentile ranks on the CAT are used to show a student's relative position in the national norm group. Percentile ranks are fairly easy to interpret for students and parents. For example, in explaining a CAT percentile rank to a seventh grader one would say, "Your percentile rank of 80 in Mathematics Computation means you obtained a score higher than 80 out of every 100 students in the sample of seventh graders in the nation."

When percentile ranks are given for a student on one or more subtests, it is possible to determine not only a student's position in the national norm group, but it is possible to determine how his scores on the different subtests compare with each other. (This type of intra-individual comparison could not be made when only raw scores are known for the various subtests.) The following example for two students in the sixth grade will illustrate the uses of the percentile rank.

	Reading Vocabulary		Reading Comprehension		Total Reading	
Student	Raw Score	%ile Rank	Raw Score	%ile Rank	Raw Score	%ile Rank
Eric	25	84	14	28	39	56
Greg	18	52	17	41	35	47

*The percentile rank should not be confused with the percent right. Refer to definitions 7, 8, 9, and 14 in Table 3.

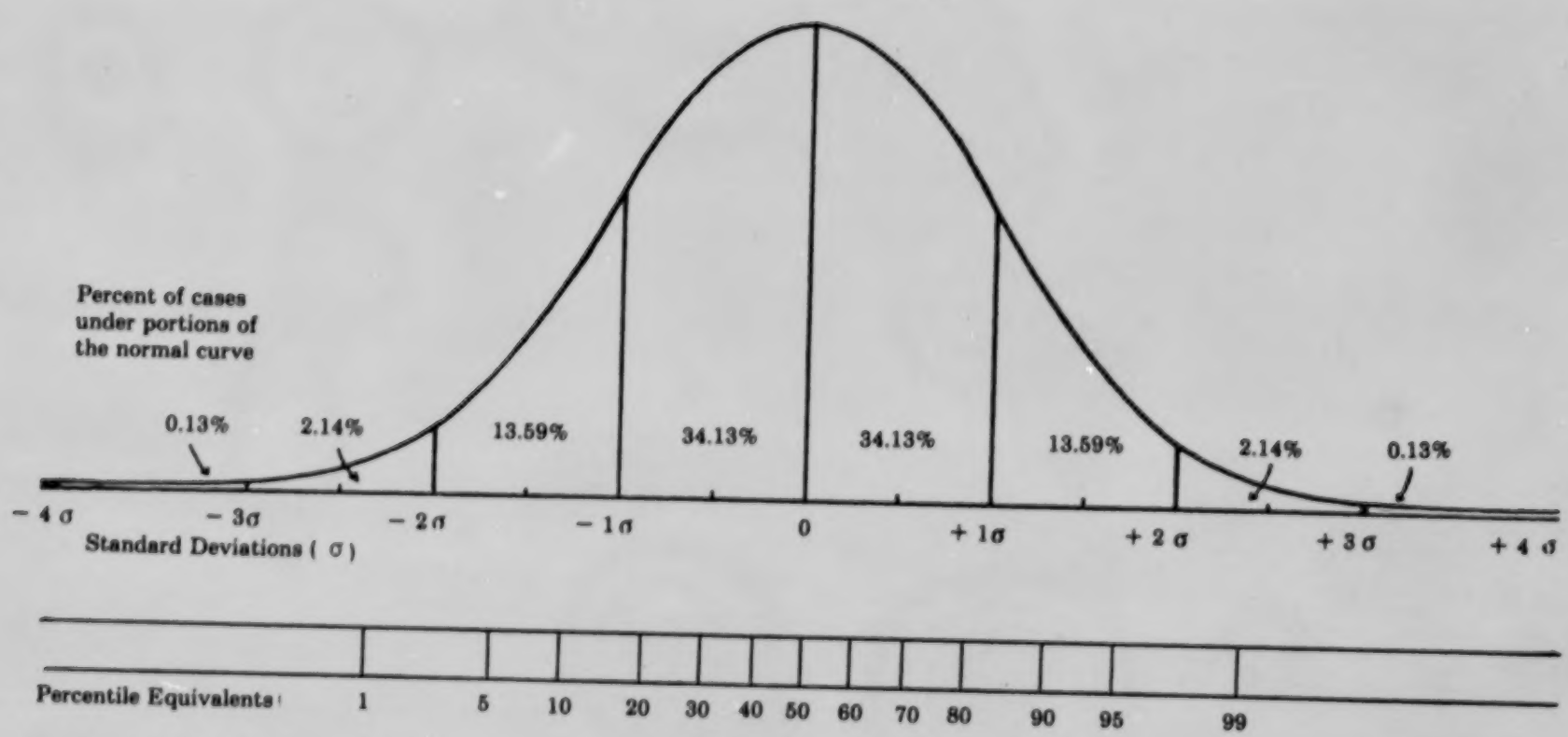


Figure 1. Relationship among normally distributed raw scores, standard deviations, and percentiles.

In Reading Vocabulary Eric is above average with a percentile rank of 84, and Greg is about average with a percentile rank of 52. However, Eric is below average and Greg is about average in Reading Comprehension. In Total Reading both Eric and Greg are about average. If only Eric's percentile ranks are examined, (intra-individual comparison), it may be concluded that Eric's vocabulary is above average, but his reading comprehension is below average. This pattern of reading scores suggests that although Eric has a good vocabulary, his comprehension is low. Reasons for this contrast between the two scores should be examined. Such questions as the following might be investigated. Is Eric receiving a low score because he is reading too slowly and not completing the Reading Comprehension subtest? Is Eric reading too fast without fully comprehending what he reads and thereby obtaining a low score?

Advantages of percentile ranks. The percentile rank is extremely popular. Almost all test publishers include percentile rank conversion tables in their test manuals. One advantage of the percentile rank is that it is easy to understand and explain to parents and students. It simply tells how well a student performed in comparison to others in the national group who took the same test. The percentile rank is essentially self-interpreting. The CAT percentile ranks may be used to determine a student's relative position (not the amount of difference between scores) within the national norm group.

A second advantage of the percentile rank is that a common scale of values (1 to 99) is used for all distributions on all tests. This makes it possible to compare a student's performance on one test or subtest with his performance on another subtest.

The third advantage of percentile ranks tends to be rather technical, however, it should be mentioned. The distribution of raw scores can vary immensely from a normal distribution without changing the interpretation of the percentile ranks. In other words, it is not true that the raw scores must be distributed normally to compute and interpret percentile ranks. Percentile ranks can be appropriately interpreted when the distribution of raw scores is not a normal distribution.

Disadvantages of percentile ranks. One of the most important disadvantages of the percentile rank is that differences between percentiles are not equal to the differences between raw scores. For this reason, percentile norms are said to be "rubber units." This means that percentile ranks tend to exaggerate small raw score differences near the average raw score. Likewise, they tend to minimize large differences in raw scores near the extremes (high scores and low scores) of the distribution. For example, in a normal distribution of raw scores, the raw score difference between the 90th and 99th percentiles is much greater than the raw score difference between the 50th and 59th percentiles. In other words, a student at the 99th percentile is farther away (in raw score points) from a student at the 90th percentile than a student at the 59th percentile is from a student at the 50th percentile. Thus, it is easy to overemphasize differences near the average score and underemphasize differences near the lowest and highest scores.

Because percentile ranks are not equally spaced, they cannot be treated arithmetically (averaged). That is, the result of averaging percentile ranks is not meaningful. The percentile ranks are themselves end-products. After deriving percentile ranks and interpreting them, their utility is exhausted.

The percentile rank scale with a range of 1 to 99 appears to be an overly elaborate scale on short subtests. This second disadvantage means that the percentile rank presents an illusion of comprehensiveness that may not exist. For example, the spelling subtest of the CAT has only 20 items on it, thus the possible range of raw scores is from 0 to 20. When the percentile rank scale is superimposed on the results of the spelling subtest it appears that the spelling subtest is longer and more comprehensive.

The third disadvantage of the percentile rank lies in the fact that percentile ranks do not show student growth per se. For example, a student may have a percentile rank of 50 at the end of the fifth grade and again at the end of the sixth grade. Obviously, the student has progressed. He was average in comparison with other fifth graders, and the next year he was average with respect to other sixth graders. He gained just as much in the sixth grade as did the average sixth grader. But the test scores show two successive percentile ranks of 50.

Stanines

Uses of stanines. The stanine is another convenient and useful derived score. As defined earlier (see Table 3), it is a single digit standard score (ranging from a low of 1 to a high of 9.) A stanine of 5 is average. Stanines are being used more and more frequently to show a student's relative performance.

Preassigned percentages of students in the national norm group fall into each of the nine stanines. Table 4 shows the approximate percentage of students in a normal distribution who fall into each stanine.* The definition of each stanine shown in Table 4 may be used to help explain stanine scores to parents and students. For example, if a student receives a stanine of 8 on the Total Language subtest of the CAT, one can say, "The student's stanine score of 8 in language represents a superior test performance."

Table 4

Percent of Students in Each Stanine and Definition of Each Stanine

Stanine	Percent of Students*	Definition
9	4	Very Superior
8	7	Superior
7	12	Considerably Above Average
6	17	Slightly Above Average
5	20	Average
4	17	Slightly Below Average
3	12	Considerably Below Average
2	7	Poor
1	4	Very Poor

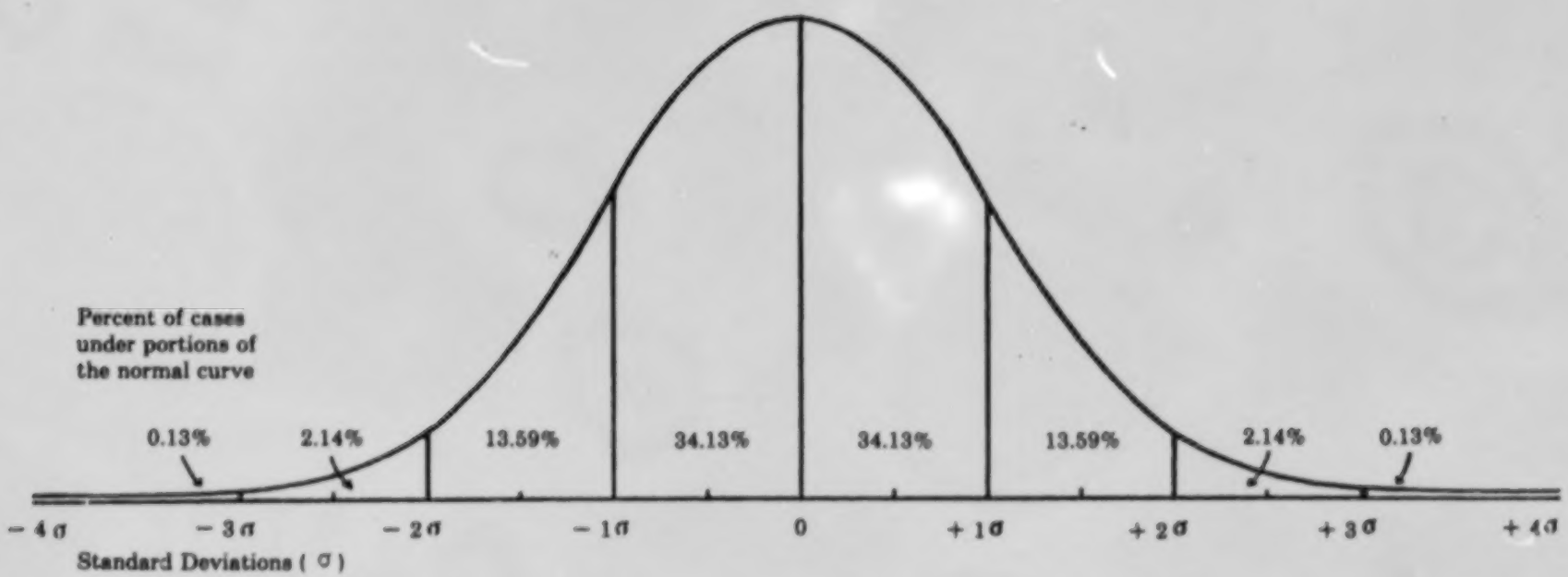
Figure 2 illustrates the relationship between normally distributed raw scores and stanines. The percent of cases falling in each stanine of a normal distribution is also shown in Figure 2.

Stanines may be used to compare the performance of a student from subtest to subtest. Usually stanine differences of two of more points are educationally significant. Thus, if a student receives a stanine of 4 in Total Reading on the CAT and a stanine of 6 in Total Mathematics, we can say that, with respect to the national norm group, he performs better in mathematics.

If it is desirable to use the CAT results to group students in the classroom for instructional purposes, the stanine score may be used. For example, suppose the Mathematics Computation subtest of the Grouped Item Response Record yielded the following information for 30 students in a fifth grade class.

Number of Students	Stanine
1	9
2	8
2	7
3	6
7	5
5	4
3	3
3	2
2	1
Total 30	

*With distributions which are not normal the percent of students in each stanine is only approximate.



Stanines	1	2	3	4	5	6	7	8	9
Percent in Stanine	4%	7%	12%	17%	20%	17%	12%	7%	4%

Figure 2. Relationship among normally distributed raw scores, standard deviations, and stanines.

The teacher could form, for example, four homogeneous groups of students with respect to Mathematics Computation. The first group of students could be composed of the five students who fell in stanines 7, 8, and 9. The second group could be composed of the ten students receiving stanines of 5 and 6. The third group could be composed of the eight students in stanines 3 and 4, and the fourth group would be the five students in stanines 1 and 2.

Stanines may also be used in another way at the classroom level. The number of students in the classroom in each stanine for a particular subtest may be compared with the number of students in a normal distribution who would be expected to fall into each stanine. The information in Table 5 shows the number of students for each class size (from sizes 20 to 40) who are in each stanine. (These numbers are based on the percents shown in Table 4.)

Table 5

Number of Students in a Normal Distribution in Each Stanine for Classes of Size 20 to 40

	Stanine								
Size of Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
20	1	1	2	4	4	4	2	1	1
21	1	1	2	4	5	4	2	1	1
22	1	1	3	4	4	4	3	1	1
23	1	1	3	4	5	4	3	1	1
24	1	2	3	4	4	4	3	2	1
25	1	2	3	4	5	4	3	2	1
26	1	2	3	4	6	4	3	2	1
27	1	2	3	5	5	5	3	2	1
28	1	2	3	5	6	5	3	2	1
29	1	2	4	5	5	5	4	2	1
30	1	2	4	5	6	5	4	2	1
31	1	2	4	5	7	5	4	2	1
32	1	2	4	6	6	6	4	2	1
33	1	2	4	6	7	6	4	2	1
34	1	2	5	6	6	6	5	2	1
35	1	2	5	6	7	6	5	2	1
36	1	2	5	6	8	6	5	2	1
37	1	2	5	7	7	7	5	2	1
38	1	2	5	7	8	7	5	2	1
39	1	3	5	7	7	7	5	3	1
40	1	3	5	7	8	7	5	3	1

For example, 27 students in a particular class took the Total Mathematics subtest of the CAT. The number of students from this class who actually fell into each stanine for the Total Mathematics subtest is shown below.

	Stanine								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Number of Students	2	3	5	7	7	2	1	0	0

If this information for the class is compared to the information in Table 5, we see that more students than would be expected (in a normal distribution) are falling in the lower stanines of 1, 2, and 3. Fewer students than would be expected are falling in the upper stanines of 7, 8, and 9. This information helps describe the standing of our class of 27 students in comparison to a normal distribution of students.

The percent of students in a particular school, in a particular grade who fell into each stanine could be computed and compared to the data in Table 4. This school level comparison would be valuable in describing the grade level population in relation to a normal distribution.

Advantages of stanines. Because only the integers 1 to 9 occur as stanine scores, the stanine has as an advantage the ease of recording and interpreting. Although these nine integers do not provide a fine level of discrimination, they do provide the precision required for most practical testing situations. The stanine can stand alone and be meaningfully interpreted, especially for parents and students.

The use of stanines also discourages overemphasis of small differences. For example, Mary may receive a percentile rank of 66 on the 20 item Spelling subtest of the CAT, and Tony may receive a spelling percentile rank of 76. With these two percentile ranks, one might be tempted to conclude that Tony is much better in spelling than Mary. However, the raw score difference in this case is only one point. The stanine for both Mary and Tony in spelling is 6. In reality, there is probably little difference between Tony and Mary with respect to achievement in spelling.

Another advantage of stanines is that they may be used for direct comparison of student attainment on several tests or subtests. It is, for example, "safe" to compare a student's stanine in Mathematics Computation with his stanine in Reading Comprehension. That is, if a student has a stanine of 6 in Mathematics Computation and a stanine of 3 in Reading Comprehension, it is meaningful to conclude that the student has a higher level of attainment in Mathematics Computation than in Reading Comprehension.

Stanines also have as an advantage the feature that makes it possible to add together several stanine scores to obtain a composite score. This is possible because the sum of several stanine scores for a student gives equal weight to each measure. Stanines, unlike percentile ranks, can be meaningfully averaged.

Disadvantages of stanines. One of the major criticisms of stanines is that they do not show growth *per se*. As explained as a similar disadvantage for percentile ranks, a student may receive a stanine of 6 in the fifth grade in reading comprehension and receive the same stanine score in the sixth grade. We know that the student has gained knowledge in reading comprehension if he was able to maintain the same stanine score from one year to the next. This means that growth *per se* is not shown because if a student's progress is equal to the progress of the norm group, he retains the same position in the group. Thus, he receives the same stanine score.

The second disadvantage of stanines is that, for some educational purposes, they may be too crude. They divide a set of scores into only nine parts. This means that because the range of possible raw scores on a test is usually greater than nine, several raw scores are grouped together into each stanine band. Finer discriminations which could be made between two students may be masked by grouping students with differing raw scores into one stanine. Greater refinement might be desirable in some educational situations. A finer measuring scale may be desired if students are being selected for special programs for the gifted or for rewards such as scholarships, etc.

Grade Equivalents

Uses of grade equivalents. Grade equivalents have probably been the most frequently used scores in reporting achievement test results. They appear to be simple, however, they have often been misused and misunderstood. Because of the frequent misuse of grade equivalents, an extension of the definition of a grade equivalent given in Table 3 will be provided before the discussion concerning the uses of grade equivalents is begun. As the method by which a grade equivalent is typically determined by test publishers is illustrated, the definition of a grade equivalent will become more apparent.

When beginning the standardization process, a test publisher usually administers an achievement test to a large national sample of students. The sample of students is chosen from one or more grade levels. For example, the fourth grade level of the AAA Achievement Test may be administered on a national level to large numbers of students in the third, fourth, and fifth grades. If the test was administered during the month of October, and the median* raw score for all third graders who took the test was 57, then the grade equivalent for a raw score of 57 was set at 3.1.** If the median score for all fourth graders who took the test in October was 67, then the corresponding grade equivalent was set at 4.1. Similarly, if the median raw score for all of the fifth graders was 77, then this corresponded to a grade equivalent of 5.1.

When these three median raw scores, 57, 67, and 77 are plotted on a graph, the results may be shown as points A, B, and C as illustrated in Figure 3. The publisher of the test has thus established the grade equivalents for raw scores of 57, 67, and 77 to be 3.1, 4.1, and 5.1, respectively. These three grade equivalents were established by the actual testing of students. Then if points A, B, and C are connected as shown by the solid line in Figure 3 grade equivalents for raw scores between 57 and 67 and for raw scores between 67 and 77 may be determined. The grade equivalents between 3.1 and 4.1 and between 4.1 and 5.1 can be established through **interpolation** ★ although no students were tested during the months of November through June. This method of determining grade equivalents assumes that continuous progress was made between grade levels.

Through **extrapolation**• (see broken lines in Figure 3), the test publisher establishes the grade equivalents for raw scores above 77 and for those below 57. The grade equivalents for raw scores above 77 and for raw scores below 57 are based on how the test publisher believes students in grades lower than 3.1 and in grades higher than 5.1 **might** have scored had they taken the test. Remember, only students at grade levels 3.1, 4.1, and 5.1 were actually tested for purposes of this example.

To summarize the preceding four paragraphs, a wide range of grade equivalent values is determined by test publishers through interpolation and extrapolation. So, for an achievement test at any grade level, a grade equivalent is shown for each possible raw score. Although the test may not have been administered (during the national standardization process) to more than two or three grade levels, grade equivalents are extended above and below the grade levels tested.

In using grade equivalents, it must be understood that a grade equivalent can **not** always be taken at face value. For example, if a beginning fourth grader receives a Total Mathematics grade equivalent of 8.0, it can **not** be assumed that he has mastered all of the mathematics subject matter required of fifth, sixth, and seventh graders. This grade equivalent of 8.0 can **not** be used to say that the fourth grade student should be placed in the eighth grade mathematics program. It, however, can be used to indicate that the student is performing at a high level in mathematics when compared to other fourth grade students. If the fourth grade student had taken the eighth grade test, he very likely would have received a grade equivalent below 8.0. (Remember that the test publisher set the grade equivalent of 8.0 on the fourth grade test based on an extrapolated curve similar to the one shown in Figure 3. The fourth grade test was not administered to any eighth graders.)

It is important to note that the range of possible grade equivalents on the CAT varies from level to level and from subtest to subtest within a level. The variation in the range of grade equivalents for each level, form, and subtest of the CAT is illustrated in Table 6. As shown in Table 6, grade equivalents were established for each level of the CAT except: (1) Level 10; (2) the Phonic Analysis subtest of Levels 11, 12, and 13; and (3) the Structural Analysis subtest of Levels 12 and 13.

*The median score is the midpoint of a set of scores; half the scores are above the median and half are below the median.

**Grade equivalents are expressed as decimals and on the CAT may range from 0.1 to 12.9. The numeral to the left of the decimal refers to the grade level, and the numeral to the right of the decimal refers to the school month. On the CAT, September is month 0, October month 1, November month 2, etc.

★ Interpolation is defined as the process of estimating an unknown value between two known values.

• Extrapolation is defined as the process of estimating an unknown value by extending known information beyond the range of available data.

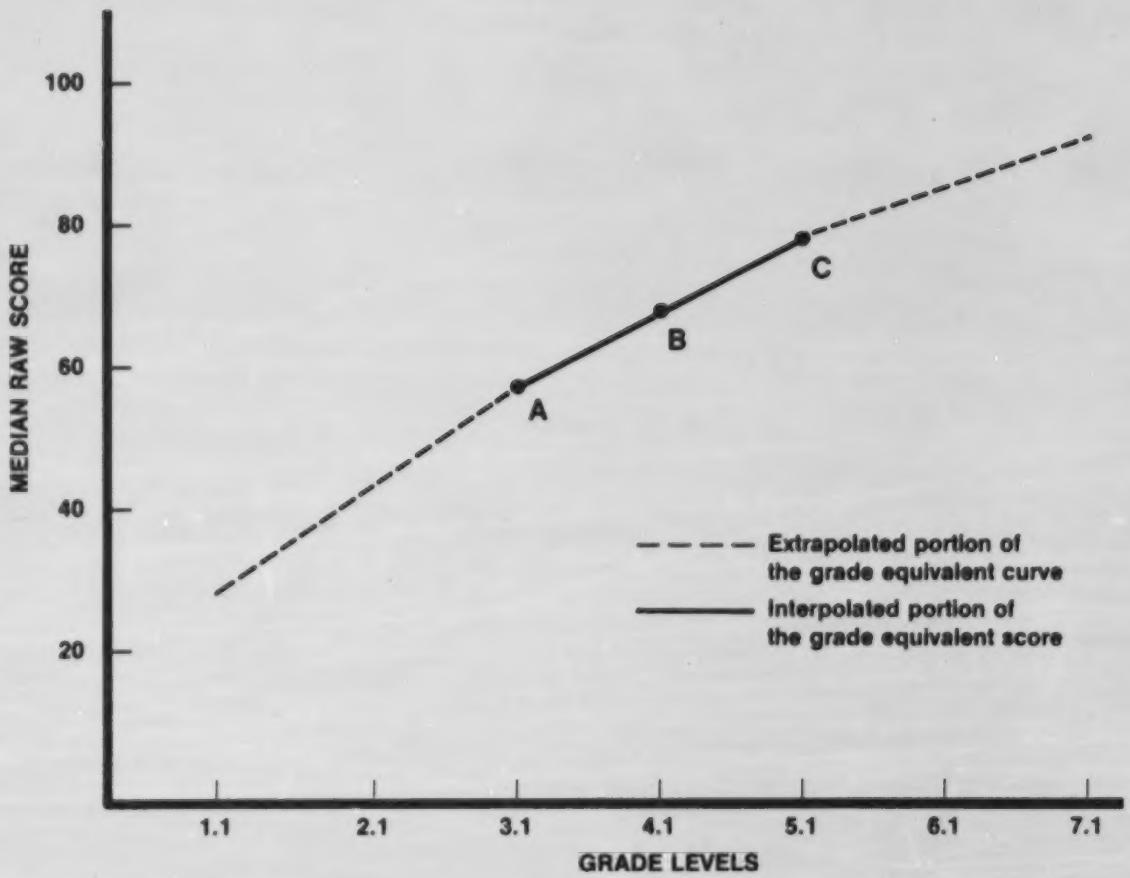


FIGURE 3: Interpolated and extrapolated grade equivalent curve for hypothetical example.

Table 6

Lowest and Highest Possible Grade Equivalents for Each Subtest, Level, and Form of the CAT

Subtest	Levels of the CAT					
	11	12	13	14	15	16 - 19
Form C						
Rd. Voc.	0.1 - 2.7	0.1 - 4.0	0.1 - 5.8	1.3 - 8.3	1.3 - 10.7	2.0 - 12.9
Rd. Comp.	0.1 - 3.7	0.1 - 4.9	0.1 - 6.7	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Tot. Rd.	0.1 - 3.6	0.1 - 5.8	0.1 - 7.9	1.3 - 12.0	1.3 - 12.2	2.0 - 12.9
Spelling	*	0.1 - 5.9	0.1 - 10.5	1.3 - 12.2	1.3 - 12.2	2.0 - 12.5
Lang. Mech.	*	0.1 - 5.5	0.1 - 8.5	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Lang. Exp.	0.1 - 2.6	0.1 - 4.4	0.1 - 8.3	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Tot. Lang.	*	0.1 - 5.1	0.1 - 10.2	1.3 - 12.2	1.3 - 12.9	2.0 - 12.9
Math. Comp.	0.1 - 2.9	0.1 - 3.7	0.1 - 6.0	1.3 - 8.5	1.3 - 11.7	2.0 - 12.5
Math. Appl.	0.1 - 3.8	0.1 - 5.5	0.1 - 8.0	1.3 - 10.9	1.3 - 12.2	2.0 - 12.9
Tot. Math	0.1 - 3.5	0.1 - 4.7	0.1 - 7.0	1.3 - 10.2	1.3 - 12.2	2.0 - 12.5
Tot. Batt.	0.1 - 3.9	0.1 - 5.7	0.1 - 8.0	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Ref. Sk.	*	*	*	1.3 - 12.2	1.3 - 11.3	2.0 - 12.9
Form D						
Rd. Voc.	Form D Does Not Exist At This Level	Form D Does Not Exist At This Level	0.1 - 6.4	1.3 - 9.0	1.3 - 11.0	2.0 - 12.9
Rd. Comp.			0.1 - 7.5	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Tot. Rd.			0.1 - 8.3	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Spelling			0.1 - 10.5	1.3 - 12.2	1.3 - 12.2	2.0 - 12.5
Lang. Mech.			0.1 - 8.3	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Lang. Exp.			0.1 - 8.0	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Tot. Lang.			0.1 - 9.2	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Math. Comp.			0.1 - 6.3	1.3 - 8.6	1.3 - 12.2	2.0 - 12.5
Math. Appl.			0.1 - 7.9	1.3 - 10.0	1.3 - 12.2	2.0 - 12.9
Tot. Math			0.1 - 6.8	1.3 - 9.8	1.3 - 12.2	2.0 - 12.5
Tot. Batt.			0.1 - 8.0	1.3 - 12.2	1.3 - 12.2	2.0 - 12.9
Ref. Sk.			*	1.3 - 10.0	1.3 - 11.4	2.0 - 12.9

*Subtest not given at this level.
Note: Grade equivalents are not reported for Level 10.

In interpreting grade equivalents, it must be remembered that the grade equivalent indicates average performance. So, for a particular "on level" grade equivalent, we know that 50% of the students in the national norm group were above this grade equivalent, and 50% were below it. This means that we should not expect all of the students at a particular grade level to attain that grade equivalent. If, for example, one-half of the fourth graders in a school were above 4.9, and one-half were below 4.9 at the end of the year, then it could be concluded that the fourth graders were comparable to the national norm group.

Advantages of grade equivalents. An advantage of grade equivalents is that they are expressed in terms of units which are familiar to school personnel. Grade equivalents provide a reference system which is seemingly easy to understand in school environments. A second advantage of grade equivalents is that they may be used to show growth for a particular student. If a student's grade equivalent on the Total Mathematics subtest of the CAT increases from 4.8 at the end of the fourth grade to 5.8 at the end of the fifth grade, it is interpreted that the student grew one year in mathematics during the fifth grade. Thus, the grade equivalent may be used to show growth or change within a single subtest.

Disadvantages of grade equivalents. Grade equivalents have been a very popular means of expressing student achievement. However, they have probably been the most confusing and most misinterpreted achievement test scores. Grade equivalents have many limitations and unless these limitations are fully understood, interpretations of grade equivalents can be very misleading or even inaccurate. The following paragraphs should show the major limitations of grade equivalents.

Grade equivalents may not be used to compare a student's scores across subtest areas. This means that a grade equivalent for a student on one subtest of the CAT can not meaningfully be compared with that student's grade equivalent on another subtest. For example, a fifth grade student, Tony, could receive a grade equivalent of 11.6 in Total Reading and 8.0 in Total Mathematics and in fact be performing identically in math and in reading when compared to other fifth graders. When we compare Tony's corresponding percentile ranks on these two tests (by consulting the test publisher's conversion tables), it is found that his percentile rank on both reading and math is 99. In other words, when Tony is compared to other fifth graders he holds the same relative position in reading and math. Yet, it is hard to resist the temptation to conclude that Tony is extremely more advanced in reading than in math.

An exceptionally high (or low) grade equivalent may not be used to conclude that the student receiving that grade equivalent should be placed in that grade. In the example above, Tony, a fifth grade student, received a grade equivalent of 8.0 in Total Mathematics. It may not be concluded that Tony should skip sixth and seventh grade mathematics and be placed in an eighth grade mathematics class. The fifth grade mathematics test contains few or possibly none of the eighth grade mathematics concepts. We can be assured that Tony has not mastered all of the concepts necessary to perform satisfactorily in eighth grade mathematics. The 8.0 Tony received simply means that Tony is performing quite well in mathematics. In fact, he is performing as well as the average eighth grader would on the fifth grade test! Therefore, extremely high or extremely low grade equivalents have questionable value; they do not represent the actual performance of students at the higher or lower grade levels. Interpretation of an extreme grade equivalent should always be done with care.

The variation among students' grade equivalents increases from the lower grades to the higher grades. This could mean, for example, that a student who receives a grade equivalent of 3.0 in the fifth grade could be expected to receive a grade equivalent of 4.0 in the eighth grade! This is likely to be interpreted (erroneously) that the school is failing, because in the fifth grade the student was only two years behind and by the eighth grade he is four years behind. To understand this third limitation of grade equivalents let's use the test scores of three students. Our first student, John, is a low achieving student; Betty is an average student; and our third student, Mike is a high achieving student. Let's follow these three students' achievement test scores in reading for three years in the fourth, fifth and sixth grades. The information below shows that John's percentile rank (10) in reading was constant for three years. Betty's percentile rank was consistently 50, and Mike's percentile rank was 90 for each of the three years.

	Grade 4		Grade 5		Grade 6	
Student	Percentile Rank	Grade Equivalent	Percentile Rank	Grade Equivalent	Percentile Rank	Grade Equivalent
John	10	2.6	10	3.3	10	3.9
Betty	50	4.7	50	5.7	50	6.7
Mike	90	7.9	90	8.9	90	10.6

When we examine the grade equivalents for these three students, we see that John grew .7 years from the fourth to the fifth grade and .6 years from the fifth to the sixth grade. Based on the grade equivalents, it is tempting to conclude that John is not keeping up. It seems that John was 2.1 years behind by the end of the sixth grade. But his percentile rank has remained constant and he is keeping up. That is, he is not losing ground when compared to the national norm group.

Betty's grade equivalents show gains of 1.0 years from the fourth to the fifth grade and from the fifth to the sixth grade. Her percentile rank reflects also that she has retained her relative position within the national group.

Mike shows gains of 1.0 years and 1.7 years, and it is tempting to conclude that Mike is gaining by "leaps and bounds." However, his relative standing in the national norm group has remained constant (percentile rank of 90) for the three testing periods.

It is difficult to determine precise interpretation of grade equivalents. It is especially difficult to interpret grade equivalents on short subtests of an achievement test. On the Spelling subtest of the CAT, for example, 20 months growth in grade equivalents may be represented by only one item. Specifically, a raw score of 15 on the Spelling subtest of Level 14, Form C corresponds to a grade equivalent of 6.5. A raw score of one more point, a 16, corresponds to a grade equivalent of 8.5!!! Although this example is an extreme case, it is evident that precise interpretation of grade equivalents is often difficult and may be misleading.

Objective Mastery Report (OMR)

Format of the OMR

The OMR was designed to provide information for individual students and for the class relative to the objectives measured by the CAT. It summarizes CAT data for each student and for the class. Because OMR data for a class appear on a single sheet of paper, the OMR is a particularly succinct and useful report.

A sample of an OMR appears in Table 7. The same type of identifying data found on the GIRR appears on the OMR. The identifying information in the upper left hand corner of the OMR for grades K-6 includes the location, grade, section, number of students tested, and the level and form of the CAT which was administered. This same information appears for grades 7-10 except the section designation is replaced with the **language arts or mathematics teacher's number** and the **period** the class was taught. (On the OMR, secondary language arts teachers receive information on all CAT subtests except the mathematics subtests. Secondary mathematics teachers receive information for their mathematics classes on only the mathematics subtests of the CAT.)

Table 7 shows that students' names are printed across the top of the OMR. Directly under each student's name is a column of symbols used to indicate the extent to which the student mastered each objective. The objectives which the student mastered are shown with a + symbol. The "P" indicates the student had partial mastery of the objective, and the − symbol shows the student did **not** master the objective. Refer to Table 9 for an explanation of the relationship between the number of items for an objective and mastery, partial mastery, or non-mastery.

On the left side of the OMR, objective numbers with accompanying descriptions are indented under subtest headings. (See Table 7.) To the right of the objectives are four columns of numerals. The first three columns indicate the **number** of students in the class who had (1) non mastery (NON MAS N), (2) partial mastery (PART KNL N), and (3) mastery (MAS N) of each objective. The fourth column shows the **percent** of students in the class who mastered each objective (MAS PCT).

Table 8 is a key to the sample page of the OMR. The definitions in Table 8 are provided to clarify the information shown on the OMR.

TABLE 7

Sample of Objective Mastery Report

LOC

GRADE 04

(1) NUMBER OF STUDENTS TESTED

SECTION 03

STUDENTS 04

A B C D
D U O A
A T W W
I L A S
R E N O
R N
T D
H K A M

CALIFORNIA ACH TEST
LEVEL 14 FORM C

	NON MAS N	PART KNL N	MAS N	MAS PCT	O	I	V	A
(2) SUBTEST → READING VOCABULARY								
32 Same Meaning	(0)	0	4	100	+	+	+	+
33 Opposite Meaning	1	1	2	50	+	+	P	-
34 Multimeaning	0	(3)	1	25	+	P	P	P
(3) OBJECTIVE NUMBER → READING COMPREHENSION								
36 Lit Comp Recal Fa	0	1	3	75	+	+	+	P
38 Inter Comp-Infer	0	3	1	25	P	P	+	P
39 Inter Comp-Chara	1	0	3	75	+	-	+	+
40 Lit Comp-Fig Lang	3	0	1	25	+	-	-	-
42 Crit Comp-Auth At	1	3	(0)	00	P	P	P	-
SPELLING								
(4) OBJECTIVE DESCRIPTOR → 44 Consonant Phonemes	0	0	4	100	+	+	+	+
Vowel Phonemes/Gr	0	0	4	100	+	+	+	+
46 Morphemic Units	0	1	3	75	+	P	+	+
LANGUAGE MECHANICS								
48 Cap-I/Proper Noun	1	1	2	50	+	-	+	P
50 Beginning Words/T	3	1	0	0	P	-	-	-
51 Punct-End Marks	0	3	1	25	P	+	P	P
53 Punct-Comma	3	1	0	0	-	-	P	-
54 Punct-Quotation M	4	0	0	(0)	-	-	-	-
LANGUAGE EXPRESSION								
57 Usage-Pronouns	0	2	2	50	P	+	P	+
58 Usage-Verbs	0	1	3	75	+	+	+	P
59 Usage-Adjectives	1	2	1	25	+	P	P	-
60 Sent Stru-Subj/Ve	1	3	0	00	P	-	P	P
62 Sent Stru-Mod/Tra	3	1	0	00	-	-	P	-
63 Sent Stru-Comp/In	0	1	3	75	+	+	+	P
66 Para Org Sequence	1	3	0	00	P	P	P	-
MATHEMATICS COMPUTATI								
69 Addition	0	1	3	75	+	+	+	P
70 Subtraction	0	2	2	50	+	P	+	P
71 Multiplication	1	2	1	25	+	P	P	-
72 Division	0	2	2	50	+	+	P	P
MATH CONCEPTS/APPLICA								
73 Numeration	0	3	1	25	+	P	P	P
74 Number Theory	0	4	0	00	P	P	P	P
76 Number Sentences	3	1	0	00	-	-	P	-
78 Number Properties	3	0	1	25	+	-	-	-
80 Common Scales	2	1	1	25	+	P	-	-
81 Geometry	0	0	4	100	+	+	+	+
82 Measurement	0	1	3	75	+	+	+	P
84 Graphs	0	4	0	00	P	P	P	P
88 Story Problems	1	2	1	25	P	+	P	-
REFERENCE SKILLS								
89 Title Pg/Copyrt P	0	0	4	100	+	+	+	+
90 Table of Contents	0	0	4	100	+	+	+	+
91 Index	1	2	1	25	+	P	-	P
92 Dictionary Page	1	3	0	00	P	P	-	P
93 Map	1	1	2	50	+	+	-	P

NUMBER OF STUDENTS WITH:

(5) NON-MASTERY OF THE OBJECTIVE

(6) PARTIAL MASTERY (KNOWLEDGE) OF THE OBJECTIVE

(7) MASTERY OF THE OBJECTIVE

(8) PERCENT OF STUDENTS WITH MASTERY OF THE OBJECTIVE

(9) MASTERY SYMBOL (+)

(10) PARTIAL MASTERY SYMBOL (P)

(11) NON-MASTERY SYMBOL (-)

Table 8

Key to Sample of Objective Mastery Report

① **NUMBER OF STUDENTS TESTED** — The total number of students tested in the class is indicated.

② **SUBTEST** — The subtest heading identifies the specific subtest.

③ **OBJECTIVE NUMBER** — An objective number identifies each objective.

④ **OBJECTIVE DESCRIPTOR** — An objective descriptor defines a specific skills area.

NUMBER OF STUDENTS WITH:

⑤ **NON-MASTERY** — This column (NON MAS N) shows the number of students in the class who did not master the objective.

⑥ **PARTIAL MASTERY** — This column (PART KNL N) shows the number of students in the class who had partial mastery (knowledge) of the objective.

⑦ **MASTERY** — This column (MAS N) shows the number of students in the class who mastered the objective.

⑧ **PERCENT OF STUDENTS WITH MASTERY** — This column (MAS PCT) indicates the percent of students in the class who mastered the objective.

⑨ **MASTERY SYMBOL (+)** — The + symbol indicates that an individual student mastered the objective.

⑩ **PARTIAL MASTERY SYMBOL (P)** — The "P" indicates that an individual student had partial mastery of the objective.

⑪ **NON MASTERY SYMBOL (−)** — The − symbol indicates that an individual student did not master the objective.

Table 9

Mastery Criterion for Objectives with 4-10 Items

Number of Items on the Objective	Number of Items Correct	Level of Mastery*
4	0-2	N
	3	P
	4	M
5	0-3	N
	4	P
	5	M
6	0-3	N
	4	P
	5-6	M
7	0-4	N
	5	P
	6-7	M
8	0-4	N
	5	P
	6-8	M
9	0-5	N
	6	P
	7-9	M
10	0-6	N
	7	P
	8-10	M

*N indicates non-mastery; P indicates partial mastery; and M indicates mastery.

Interpreting and Using the OMR

The OMR, like the GIRR, has a variety of uses. The GIRR (Grouped Item Response Record) provides student and class information on individual test items, whereas, the OMR (Objective Mastery Report) provides student and class data on objectives. (Remember that an objective is measured by four or more test items. That is, four or more test items make up an objective.) Basically, the OMR has the same types of uses that the GIRR has; the major difference is that the OMR is geared toward broader instructional areas (objectives) than the GIRR.

The OMR can be used to assist the teacher in focusing instructional efforts for the following purposes:

1. to determine broad instructional areas (objectives) in which an individual student has strengths or weaknesses;
2. to determine areas in which a class has strengths or weaknesses;
3. to group students according to common needs;
4. to prioritize instructional objectives; and
5. to evaluate the progress of students.

The following paragraphs further define each of the five uses of the OMR.

Determining broad strengths and weaknesses for individuals. The OMR is valuable in determining the objectives (broad instructional areas) in which an individual student has strengths or weaknesses. The OMR indicates for each objective whether the student showed mastery, partial mastery, or non-mastery. By using the information on the OMR, it is easy to determine the instructional objectives in which a particular student shows strengths or weaknesses.

By examining the information for student Adair in Table 7, we can determine his areas of strength and weakness. For example, in mathematics, the OMR reveals that Adair mastered all computational objectives (Objectives 69, 70, 71, and 72). In Mathematics Concepts and Applications, Adair mastered Objectives 73, 78, 80, 81, and 82. Adair had partial mastery on Objective 74 - Number Theory, Objective 84 - Graphs, and Objective 88 - Story Problems. Adair did not master Objective 76 - Number Sentences. This information for Adair in mathematics helps in identifying the areas (objectives) in which the student needs more diagnosis, instruction, and/or further skill development.

When all OMR information on an individual student is studied, as we did for Adair in mathematics, it is possible to develop a general picture of the achievement level of the student. It becomes possible to identify the specific areas in reading, mathematics, language, spelling, and reference skills in which the student exhibits strengths or weaknesses.

Determining broad strengths and weaknesses for a class. The column on the OMR headed by the abbreviation MAS PCT (mastery percent) provides valuable information concerning the strengths and weaknesses of a class. This column of percents indicates the percent of students in the class who mastered each objective. If we examine this information for the Mathematics Computation subtest in Table 7, we see that 75% of the students in the class mastered addition (Objective 69) and the remaining student had partial mastery of Objective 69. On Objective 70 - Subtraction, 50% of the students had mastery and 50% had partial mastery. In multiplication, 25% of the students mastered the objective, 50% had partial mastery, and 25% did not master the objective. In division, 50% mastered the objective and 50% had partial mastery.

In summarizing this information, it is necessary to look at the other three columns of information, NON MAS N, PART KNL N, and MAS N. The NON MAS N column shows the number of students who did not master an objective. We see that on the Mathematics Computation subtest only one student showed non-mastery of one objective, Objective 71. The column headed PART KNL N indicates the number of students who had partial mastery (knowledge) of the objective. In Mathematics Computation, Table 7 reveals that one student had partial mastery of the addition objective, two students had partial mastery of the subtraction objective; two students had partial mastery of the multiplication objective; and two had partial mastery of division. Thus, we could conclude that the weakest area for this class is multiplication, and the strongest area is addition.

A word of caution is necessary in interpreting the OMR information. The school system's curriculum must be considered when using the OMR to identify objectives in which a class (or a student) is weak. If the percent of students who mastered an objective appears low, say below 25%, it is strongly suggested that one examine the curriculum to determine when or if that objective is taught to students of the grade level being tested. It is quite possible that a particular objective is not taught in the school's curriculum, and if this is true, that objective is simply not relative to the testing situation.

Grouping students with common needs. The OMR provides information which can be useful in forming groups for instructional purposes. Again, let's examine the information in Table 7 on Mathematics Computation. If we needed to group students for instruction in the area of division, we could place students Adair and Butler in one group because they showed mastery of the division objective. Students Cowan and Dawson showed partial mastery of division, and they might be placed in a second group. Then the GIRR could be used to show the specific skills (items) in division in which each student needs further diagnosis or instruction.

Data from other sources such as other standardized tests, teacher-made tests, homework, professional observation, etc., should be used in conjunction with CAT data to aid in grouping students and in identifying strengths and weaknesses. Remember that the CAT is one of many tools which, if used properly in the classroom, can assist in focusing instructional efforts for individual students or groups.

Prioritizing instructional objectives. If it is necessary to prioritize instructional objectives, information from the OMR may be helpful. For example, if we again examine Table 7, it is found that in Reference Skills all students in the class mastered Objective 89 - Title Page and Copyright Page and Objective 90 - Table of Contents. Only 50% of the students mastered Objective 93 - Map, and 25% mastered Objective 91 - Index. None of the students mastered Objective 92 - Dictionary Page. Given this information on Reference Skills, and knowledge of the school system's curriculum and any other pertinent data, it is possible to prioritize the instructional objectives relative to the area of reference skills.

Evaluating the progress of students. The results for a particular student on the fall OMR may be compared with the student's results on the spring OMR. This type of comparison can be accomplished by indicating the number (or percent) of objectives the student mastered in the fall compared with the number (or percent) mastered in the spring. For example, if the information in Table 7 was based on the results of fall testing, we see that in Mathematics Computation, student Dawson had not mastered any objectives. If the spring testing revealed that he mastered Objectives 69, 70, and 72 and had partial mastery of Objective 71, we can conclude that the student went from partial mastery to mastery on three objectives and from non-mastery to partial mastery on one objective.

Thus, we are able to determine whether the student (1) maintained mastery, (2) progressed from non-mastery to either partial mastery or mastery, (3) progressed from partial mastery to mastery, (4) regressed from mastery to either partial mastery or non-mastery, and (5) regressed from partial mastery to non-mastery. This information on an individual student may be compared with the percent of students in the class who mastered the objectives in the fall and in the spring.

When using the OMR to evaluate the progress of students, it is necessary to understand the meanings of non-mastery (N), partial mastery (P), and mastery (M) related to percentile rank and grade equivalent. The tables shown in Appendixes A, B, C, and D provide the reader with percentile ranks and grade equivalents associated with non-mastery, partial mastery, and mastery for each subtest or total area of the CAT. Tables 10-21 summarize the information shown in Appendixes A, B, C, and D. For example, in Table 29 of Appendix A it is found that on the Mathematics Computation subtest a student may have correctly answered only six items (maximum number correct and still receive non-mastery) for each of the four objectives 69, 70, 71, and 72. Thus, his raw score is 24, and the raw score of 24 corresponds to a percentile rank of 52 (for the end of the fourth grade) and a grade equivalent of 4.8. This example shows that the student did not master any of the objectives in Mathematics Computation, yet he received a percentile rank and grade equivalent which indicated he was in the average group!

If this example is extended, it is found that if a fourth grade student answers correctly seven items for each of the Mathematics Computation objectives, he will receive partial mastery on each objective. And, based on the partial mastery, he will receive a percentile rank of 68 (at the end of the fourth grade) and a grade equivalent of 5.4! Thus, the student showed only partial mastery of the fourth grade Mathematics Computation objectives, but his grade equivalent is slightly above grade level and the percentile rank is in the upper average range.

Extending this example, see Table 29, to the mastery range it is found that a fourth grade student could respond correctly to eight of the ten items for each of the Mathematics Computation objectives. Thus, the fourth grade student would receive a raw score of 32. This raw score of 32 corresponds to a percentile rank of 83 and a grade equivalent of 6.1. Clearly, in this example, the student who showed (minimal) mastery of each Mathematics Computation objective is above average at the end of the year.

These examples show that the highest level of non-mastery of the objectives within a subtest may correspond to average, or in a few cases, slightly above average, percentile ranks and grade equivalents. In refering to Table 10 it is found that one student **not** mastering any objectives on a particular subtest may receive a percentile rank as low as 2 in Spelling on Level 12C; another student **not** mastering any objectives on a particular subtest may receive a percentile rank as high as 54 in Reading Comprehension on Level 11C. The point is that non-mastery of objectives within subtests does not correspond with any general range of achievement in terms of percentile rank and grade equivalent.

Examination of Table 13 reveals that a seventh grade student who at the end of the year did not master any of the objectives on the Language Expression subtest (but who received the highest possible score which is still considered non-mastery) receives a percentile rank of 33 and grade equivalent of 5.9. This same student also may **not** have mastered any objectives on the Mathematics Concepts and Application subtest (at the highest non-mastery level) and receive a percentile rank of 73 and a grade equivalent of 9.0. The conclusion is that within a particular level and form of the CAT, non-mastery (at the highest level) of all objectives on a subtest does not have the same meaning from subtest to subtest.

This same reasoning applies also to the highest level of partial mastery. For example, Table 14 reveals that a third grade student may attain the highest level of partial mastery in Spelling (13C) and receive a percentile rank of 7 and a grade equivalent of 1.8. The same student may also attain the highest level of partial mastery in Mathematics Concepts and Application (13C) and receive a percentile rank of 60 and a grade equivalent of 4.1. Thus, both the percentile rank of 7 in Spelling and the percentile rank of 60 in Mathematics Concepts and Application is associated with partial mastery of all of the objectives in the respective subtests. This represents a rather wide range of percentile ranks associated with partial mastery.

It is also interesting to note that the range of grade equivalents and percentile ranks associated with the **lowest** level of **mastery** is also wide. For example, on Level 13, Form D it is found that a third grade student receives a percentile rank of 27 and a grade equivalent of 2.7 for the lowest level of mastery in Spelling. The lowest level of mastery in this case reveals a percentile rank below average! However, the same third grader receives a percentile rank of 96 and a grade equivalent of 6.4 for the lowest level of mastery in Reading Vocabulary. Therefore, on one subtest, Spelling, the lowest level of mastery on all the objectives equates to below average achievement. Yet, on another subtest, Reading Vocabulary, the lowest level of mastery on all objectives equates to superior achievement. (See Table 20.)

Conclusions from Tables 10-21 are the following:

(a) The categories of non-mastery, partial mastery, and mastery do not imply the same performance level (or homogeneous range of performance) from subtest to subtest within the same level and form of the CAT.

(b) The categories of non-mastery, partial mastery, and mastery do not imply the same relative performance level across grade levels within the same subtest. Practically speaking then, one should exercise caution in interpreting non-mastery, partial mastery, and mastery. The percentile rank can be used to assist in interpreting the statement of mastery. For example, a seventh grade student may receive, at the end of the year, non-mastery (at the highest level on all objectives) in Reference Skills, and the same student may also receive non-mastery (at the highest level on all objectives) in Mathematics Computation. Even though the student received non-mastery on both subtests, his performance on the two subtests is vastly different - a percentile rank of 22 (considerably below average) in Reference Skills and a percentile rank of 69 (above average) in Mathematics Computation! (See Table 11.) The question is how **high** is non-mastery? One should also exercise caution in interpreting mastery statements from year-to-year on the same subtest. Referring to Table 18, it is found that a student may attain mastery (lowest level on all objectives) in Spelling at grade 3 and again in grade 4, however, in grade 3 his percentile rank of 23 indicates below average achievement while his percentile rank in grade 4 indicates above average achievement! The question - how low is mastery?

Table 10

Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within a Subtest Levels 11-16, Form C, CAT

	Grade and Level/Form of CAT					
Subtest	Gr. 1 11C	Gr. 2 12C	Gr. 3 13C	Gr. 4 14C	Gr. 5 15C	Gr. 6 16C
Phonic Analy.	40 (–)*	33 (–)	33 (–)	– (–)	– (–)	– (–)
Struct. Analy.	– (–)	29 (–)	19 (–)	– (–)	– (–)	– (–)
Read. Vocab.	43 (1.6)	27 (2.0)	27 (2.7)	40 (4.3)	33 (4.7)	41 (6.0)
Read. Comp.	54 (1.7)	34 (2.2)	23 (2.5)	45 (4.4)	42 (5.3)	35 (5.6)
Total Read.	44 (1.6)	28 (2.1)	22 (2.6)	42 (4.3)	38 (5.0)	37 (5.8)
Spelling	– (–)	2 (0.4)	2 (0.9)	20 (3.0)	28 (4.1)	26 (4.6)
Lang. Mech.	– (–)	18 (1.8)	27 (2.8)	36 (4.0)	35 (4.6)	27 (4.5)
Lang. Expr.	40 (1.5)	20 (1.8)	19 (2.3)	29 (3.6)	26 (4.0)	27 (4.4)
Total Lang.	– (–)	16 (1.9)	20 (2.6)	30 (3.7)	28 (4.3)	26 (4.5)
Math. Comp.	41 (1.6)	32 (2.4)	46 (3.7)	52 (4.8)	52 (5.9)	51 (6.7)
Math. Appl.	25 (1.3)	23 (1.9)	36 (3.3)	45 (4.5)	49 (5.6)	43 (6.3)
Total Math.	30 (1.4)	26 (2.2)	38 (3.5)	47 (4.6)	49 (5.7)	47 (6.6)
Total Batt.	38 (1.6)	18 (1.9)	22 (2.9)	37 (4.2)	37 (5.1)	34 (5.7)
Ref. Skills	– (–)	– (–)	– (–)	30 (3.7)	22 (3.8)	28 (5.0)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis. A dash indicates not applicable.

40

Table 11

Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within a Subtest Levels 17-19, Form C, CAT

	Grade and Level/Form of CAT			
Subtest	Gr. 7 17C	Gr. 8 18C	Gr. 9 18C	Gr. 10 19C
Read. Vocab.	51 (7.8)*	62 (9.9)	51 (9.9)	57 (11.3)
Read. Comp.	54 (8.0)	41 (8.0)	35 (8.0)	42 (10.0)
Total Read.	52 (7.9)	52 (8.9)	43 (8.9)	49 (10.6)
Spelling	32 (5.4)	36 (7.1)	30 (7.1)	50 (10.5)
Lang. Mech.	35 (5.8)	27 (5.8)	23 (5.8)	33 (8.2)
Lang. Expr.	37 (6.4)	31 (6.8)	26 (6.8)	35 (8.7)
Total Lang.	36 (6.3)	28 (6.5)	23 (6.5)	33 (8.5)
Math. Comp.	69 (8.6)	53 (9.0)	42 (9.0)	52 (11.0)
Math. Appl.	58 (8.0)	51 (8.8)	40 (8.8)	46 (10.0)
Total Math.	64 (8.2)	52 (8.9)	40 (8.9)	49 (10.4)
Total Batt.	49 (7.6)	43 (8.1)	34 (8.1)	43 (10.2)
Ref. Skills	22 (4.9)	26 (6.6)	23 (6.6)	26 (8.0)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis.

Table 12

Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within a Subtest Levels 13-16, Form D, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 3 13D	Gr. 4 14D	Gr. 5 15D	Gr. 6 16D
Phonic Analy.	37 (–)*	– (–)	– (–)	– (–)
Struct. Analy.	26 (–)	– (–)	– (–)	– (–)
Read. Vocab.	34 (3.0)	52 (4.8)	39 (5.1)	44 (6.2)
Read. Comp.	29 (2.8)	53 (4.9)	52 (5.8)	48 (6.5)
Total Read.	28 (2.9)	52 (4.8)	45 (5.4)	46 (6.4)
Spelling	1 (0.7)	32 (3.7)	30 (4.3)	31 (5.0)
Lang. Mech.	24 (2.7)	41 (4.3)	30 (4.4)	33 (5.0)
Lang. Expr.	17 (2.2)	27 (3.6)	21 (3.7)	23 (4.1)
Total Lang.	18 (2.5)	31 (3.8)	23 (3.9)	26 (4.5)
Math. Comp.	55 (3.9)	57 (5.0)	54 (5.9)	59 (7.3)
Math. Appl.	42 (3.5)	46 (4.5)	61 (6.3)	48 (6.6)
Total Math.	47 (3.6)	49 (4.7)	57 (6.0)	54 (6.9)
Total Batt.	27 (3.2)	44 (4.5)	40 (5.2)	41 (6.2)
Ref. Skills	– (–)	28 (3.6)	27 (4.2)	26 (4.8)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis. A dash indicates not applicable.

Table 13

Percentile Ranks and Grade Equivalents Corresponding to the Highest Non-Mastery Level of All Objectives Within a Subtest Levels 17-19, Form D, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 7 17D	Gr. 8 18D	Gr. 9 18D	Gr. 10 19D
Read. Vocab.	65 (8.6)*	55 (9.0)	44 (9.0)	67 (12.7)
Read. Comp.	51 (7.8)	44 (8.2)	38 (8.2)	42 (10.0)
Total Read.	57 (8.0)	49 (8.6)	39 (8.6)	52 (11.0)
Spelling	39 (6.0)	52 (8.5)	45 (8.5)	54 (10.5)
Lang. Mech.	43 (6.7)	30 (6.3)	26 (6.3)	39 (8.9)
Lang. Expr.	33 (5.9)	22 (5.6)	19 (5.6)	30 (8.1)
Total Lang.	36 (6.3)	25 (6.0)	20 (6.0)	32 (8.4)
Math. Comp.	64 (8.2)	63 (10.5)	53 (10.5)	47 (10.5)
Math. Appl.	73 (9.0)	65 (10.0)	54 (10.0)	56 (11.4)
Total Math.	69 (8.7)	63 (10.0)	52 (10.0)	51 (10.9)
Total Batt.	55 (8.0)	47 (8.5)	38 (8.5)	46 (10.2)
Ref. Skills	38 (6.5)	28 (6.9)	25 (6.9)	28 (8.1)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis.

Table 14

Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within a Subtest Levels 11-16, Form C, CAT

	Grade and Level/Form of CAT					
Subtest	Gr. 1 11C	Gr. 2 12C	Gr. 3 13C	Gr. 4 14C	Gr. 5 15C	Gr. 6 16C
Phonic Analy.	68 (–)*	49 (–)	56 (–)	– (–)	– (–)	– (–)
Struct. Analy.	– (–)	59 (–)	40 (–)	– (–)	– (–)	– (–)
Read. Vocab.	66 (1.9)	34 (2.3)	47 (3.6)	56 (5.0)	53 (5.9)	63 (7.9)
Read. Comp.	74 (2.1)	45 (2.5)	41 (3.4)	58 (5.2)	57 (6.2)	54 (7.1)
Total Read.	72 (2.1)	43 (2.5)	46 (3.6)	58 (5.1)	56 (6.0)	59 (7.4)
Spelling	– (–)	8 (1.8)	7 (1.8)	45 (4.4)	53 (5.9)	53 (7.1)
Lang. Mech.	– (–)	41 (2.5)	55 (3.9)	68 (6.1)	65 (7.5)	52 (7.0)
Lang. Expr.	71 (2.0)	41 (2.4)	40 (3.3)	51 (4.7)	53 (6.2)	56 (7.2)
Total Lang.	– (–)	40 (2.5)	46 (3.6)	59 (5.4)	59 (6.6)	54 (7.0)
Math. Comp.	55 (1.8)	46 (2.8)	59 (3.9)	68 (5.4)	67 (6.5)	68 (7.7)
Math. Appl.	51 (1.7)	42 (2.5)	60 (4.1)	73 (5.8)	71 (6.9)	69 (8.0)
Total Math.	54 (1.7)	44 (2.6)	61 (4.0)	73 (5.5)	71 (6.7)	70 (7.9)
Total Batt.	65 (1.9)	37 (2.4)	46 (3.6)	62 (5.2)	62 (6.3)	61 (7.4)
Ref. Skills	– (–)	– (–)	– (–)	52 (4.9)	38 (5.0)	55 (7.3)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis. A dash indicates not applicable.

Table 15

Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within a Subtest Levels 17-19, Form C, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 7 17C	Gr. 8 18C	Gr. 9 18C	Gr. 10 19C
Read. Vocab.	70 (9.0)*	77 (11.1)	68 (11.1)	77 (12.9)
Read. Comp.	71 (9.5)	66 (10.5)	59 (10.5)	64 (12.9)
Total Read.	71 (9.1)	73 (11.0)	64 (11.0)	71 (12.9)
Spelling	54 (8.5)	64 (10.5)	57 (10.5)	74 (12.5)
Lang. Mech.	63 (9.0)	57 (9.9)	51 (9.9)	65 (12.9)
Lang. Expr.	70 (9.5)	62 (10.2)	54 (10.2)	69 (12.9)
Total Lang.	68 (9.5)	61 (10.2)	54 (10.2)	68 (12.9)
Math. Comp.	78 (9.2)	65 (10.5)	55 (10.5)	64 (12.5)
Math. Appl.	80 (10.0)	69 (10.1)	57 (10.1)	69 (12.9)
Total Math.	80 (9.7)	68 (10.0)	57 (10.0)	67 (12.5)
Total Batt.	74 (9.0)	69 (10.3)	59 (10.3)	70 (12.9)
Ref. Skills	40 (6.6)	55 (9.5)	48 (9.5)	45 (10.3)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis.

Table 16

Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within a Subtest Levels 13-16, Form D, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 3 13D	Gr. 4 14D	Gr. 5 15D	Gr. 6 16D
Phonic Analy.	57 (–)*	– (–)	– (–)	– (–)
Struct. Analy.	52 (–)	– (–)	– (–)	– (–)
Read. Vocab.	57 (3.9)	68 (5.7)	60 (6.2)	66 (8.0)
Read. Comp.	48 (3.6)	67 (5.7)	68 (7.1)	68 (8.0)
Total Read.	53 (3.8)	68 (5.7)	66 (6.6)	67 (8.0)
Spelling	7 (1.8)	58 (5.1)	53 (6.0)	63 (8.5)
Lang. Mech.	52 (3.8)	72 (6.7)	56 (6.4)	61 (8.0)
Lang. Expr.	38 (3.3)	55 (5.1)	47 (5.4)	55 (7.2)
Total Lang.	44 (3.5)	65 (6.0)	51 (5.9)	58 (7.5)
Math. Comp.	66 (4.1)	71 (5.5)	69 (6.6)	74 (8.0)
Math. Appl.	69 (4.5)	72 (5.7)	83 (7.8)	72 (8.0)
Total Math.	69 (4.3)	73 (5.6)	79 (7.3)	74 (8.0)
Total Batt.	53 (3.8)	71 (5.6)	68 (6.7)	70 (7.9)
Ref. Skills	– (–)	48 (4.6)	42 (5.3)	56 (7.4)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis. A dash indicates not applicable.

Table 17

Percentile Ranks and Grade Equivalents Corresponding to the Highest Level of Partial Mastery on All Objectives Within a Subtest Levels 17-19, Form D, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 7 17D	Gr. 8 18D	Gr. 9 18D	Gr. 10 19D
Reading Vocab.	83 (10.4)*	76 (11.0)	66 (11.0)	86 (12.9)
Read. Comp.	71 (9.6)	62 (10.1)	55 (10.1)	63 (12.9)
Total Read.	78 (10.0)	69 (10.5)	60 (10.5)	77 (12.9)
Spelling	65 (9.5)	80 (12.5)	74 (12.5)	76 (12.5)
Lang. Mech.	74 (10.9)	61 (10.4)	55 (10.4)	72 (12.9)
Lang. Expr.	68 (9.3)	49 (8.6)	42 (8.6)	61 (12.2)
Total Lang.	73 (10.1)	56 (9.4)	48 (9.4)	67 (12.9)
Math. Comp.	75 (9.0)	73 (12.5)	64 (12.5)	59 (12.5)
Math. Appl.	89 (11.1)	81 (12.2)	71 (12.2)	77 (12.9)
Total Math.	84 (10.0)	78 (11.9)	68 (11.9)	69 (12.5)
Total Batt.	80 (10.0)	73 (10.8)	63 (10.8)	74 (12.9)
Ref. Skills	68 (9.0)	66 (10.4)	58 (10.4)	50 (10.7)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis.

Table 18

Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within a Subtest Levels 11-16, Form C, CAT

Subtest	Grade and Level/Form of CAT					
	Gr. 1 11C	Gr. 2 12C	Gr. 3 13C	Gr. 4 14C	Gr. 5 15C	Gr. 6 16C
Phonic Analy.	96 (–)*	64 (–)	94 (–)	– (–)	– (–)	– (–)
Struct. Analy.	– (–)	83 (–)	69 (–)	– (–)	– (–)	– (–)
Read. Vocab.	93 (2.7)	43 (2.5)	91 (5.8)	68 (5.7)	72 (7.1)	81 (9.0)
Read. Comp.	86 (2.5)	57 (3.0)	86 (5.6)	74 (6.2)	73 (7.5)	78 (9.1)
Total Read.	93 (2.8)	62 (3.2)	94 (6.4)	72 (5.9)	74 (7.2)	81 (9.0)
Spelling	– (–)	21 (1.9)	23 (2.6)	73 (6.5)	77 (8.5)	80 (10.5)
Lang. Mech.	– (–)	74 (3.6)	83 (5.6)	95 (10.7)	93 (12.1)	90 (12.9)
Lang. Expr.	94 (3.2)	87 (4.4)	87 (6.7)	91 (9.0)	93 (10.7)	95 (12.6)
Total Lang.	– (–)	83 (3.9)	90 (6.8)	95 (10.4)	96 (11.8)	96 (12.9)
Math. Comp.	65 (1.9)	59 (3.0)	72 (4.3)	83 (6.1)	81 (7.3)	83 (8.3)
Math. Appl.	78 (2.3)	64 (3.1)	91 (5.7)	99 (8.9)	94 (8.8)	89 (9.5)
Total Math.	76 (2.1)	63 (3.2)	83 (4.8)	95 (7.2)	90 (8.0)	88 (9.0)
Total Batt.	90 (2.5)	62 (3.1)	86 (5.1)	92 (7.3)	90 (8.0)	91 (9.8)
Ref. Skills	– (–)	– (–)	– (–)	97 (10.3)	67 (7.4)	91 (11.1)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis. A dash indicates not applicable.

Table 19

Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within a Subtest Levels 17-19, Form C, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 7 17C	Gr. 8 18C	Gr. 9 18C	Gr. 10 19C
Read. Vocab.	82 (10.3)*	87 (12.8)	80 (12.8)	88 (12.9)
Read. Comp.	86 (11.6)	90 (12.9)	86 (12.9)	87 (12.9)
Total Read.	86 (11.0)	90 (12.9)	85 (12.9)	88 (12.9)
Spelling	78 (10.5)	87 (12.5)	82 (12.5)	91 (12.5)
Lang. Mech.	94 (12.9)	93 (12.9)	91 (12.9)	94 (12.9)
Lang. Expr.	96 (12.9)	95 (12.9)	93 (12.9)	96 (12.9)
Total Lang.	97 (12.9)	96 (12.9)	95 (12.9)	97 (12.9)
Math. Comp.	87 (11.0)	76 (12.5)	67 (12.5)	74 (12.5)
Math. Appl.	95 (12.9)	86 (12.9)	77 (12.9)	87 (12.9)
Total Math.	91 (11.9)	82 (12.5)	72 (12.5)	82 (12.5)
Total Batt.	94 (12.3)	92 (12.9)	86 (12.9)	92 (12.9)
Ref. Skills	85 (10.9)	99 (12.9)	99 (12.9)	70 (12.9)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis.

Table 20

Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within a Subtest Levels 13-16, Form D, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 3 13D	Gr. 4 14D	Gr. 5 15D	Gr. 6 16D
Phonic Analy.	92 (–)*	– (–)	– (–)	– (–)
Struct. Analy.	82 (–)	– (–)	– (–)	– (–)
Read. Vocab.	96 (6.4)	78 (6.5)	76 (7.5)	81 (9.0)
Read. Comp.	89 (5.9)	82 (7.1)	84 (8.4)	89 (10.7)
Total Read.	97 (6.9)	82 (6.7)	82 (8.0)	87 (10.0)
Spelling	27 (2.7)	81 (8.5)	77 (8.5)	88 (12.5)
Lang. Mech.	82 (5.5)	96 (11.0)	91 (11.2)	94 (12.9)
Lang. Expr.	83 (6.2)	93 (9.8)	89 (10.0)	94 (12.5)
Total Lang.	87 (6.4)	97 (10.9)	93 (10.8)	96 (12.9)
Math. Comp.	78 (4.5)	83 (6.0)	84 (7.5)	85 (8.5)
Math. Appl.	93 (6.0)	98 (8.3)	97 (9.7)	90 (9.7)
Total Math.	88 (5.1)	92 (6.7)	95 (8.3)	89 (9.0)
Total Batt.	89 (5.4)	92 (7.3)	94 (8.5)	93 (10.0)
Ref. Skills	– (–)	88 (8.1)	70 (7.7)	95 (12.1)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis. A dash indicates not applicable.

Table 21

Percentile Ranks and Grade Equivalents Corresponding to the Lowest Level of Mastery on All Objectives Within a Subtest Levels 17-19, Form D, CAT

Subtest	Grade and Level/Form of CAT			
	Gr. 7 17D	Gr. 8 18D	Gr. 9 18D	Gr. 10 19D
Read. Vocab.	93 (11.9)*	88 (12.9)	80 (12.9)	94 (12.9)
Read. Comp.	90 (12.9)	83 (12.9)	78 (12.9)	87 (12.9)
Total Read.	94 (12.9)	87 (12.9)	81 (12.9)	93 (12.9)
Spelling	88 (12.5)	94 (12.5)	91 (12.5)	90 (12.5)
Lang. Mech.	98 (12.9)	97 (12.9)	95 (12.9)	96 (12.9)
Lang. Expr.	97 (12.9)	91 (12.9)	87 (12.9)	93 (12.9)
Total Lang.	99 (12.9)	96 (12.9)	94 (12.9)	96 (12.9)
Math. Comp.	84 (10.5)	82 (12.5)	74 (12.5)	70 (12.5)
Math. Appl.	99 (12.9)	92 (12.9)	86 (12.9)	91 (12.9)
Total Math.	94 (12.5)	90 (12.5)	82 (12.5)	84 (12.5)
Total Batt.	98 (12.9)	94 (12.9)	89 (12.9)	93 (12.9)
Ref. Skills	98 (12.9)	99 (12.9)	98 (12.9)	76 (12.9)

*The percentile rank for the end of the year is shown first, and the grade equivalent is shown in parenthesis.

51

California Achievement Test Results By Class

Format of the Results by Class Report

The Results by Class Report is produced by homeroom section at both the elementary and secondary levels. It provides the raw score, percentile rank, and grade equivalent for each student in the homeroom section who took the test. These three scores are reported for each subtest on the CAT.

Table 22 is a sample page of a Results by Class Report. The level and form of the CAT which was administered is indicated at the top of the report. The school code, the name of the school, the grade and section, and the month and year the test was administered is shown. A student's seven digit identification number, name, race, and sex are also shown. Table 23 is a key to the sample page shown in Table 22.

Interpreting and Using the Results by Class Report

The Results by Class Report is a summary report. All subtest scores for an individual student appear on two lines of the report. This simplifies locating the subtest scores for a particular student. The Results by Class Report makes it possible to readily compare a student's percentile rank on one subtest with his percentile rank on another subtest. Thus, it is easy to determine the subtests in which a student displays particular strengths or weaknesses. The report also makes it possible to compare an individual student's scores with the averages of the section and/or the averages of the school.

Table 22

Sample of California Achievement Test Results by Class

MEMPHIS CITY SCHOOLS CALIFORNIA ACHIEVEMENT TEST RESULTS BY CLASS LEVEL 14 FORM D DATE 10/14/XX

G10411

SCHOOL CODE 999 SCHOOL ABC ELEMENTARY GRADE 04 SECTION 04 OCTOBER 19XX

STUDENT NUMBER	LAST	STUDENT NAME FIRST	MI	READ VOCAB RS PR GE	READ COMP RS PR GE	SPELL RS PR GE	LANG MECH RS PR GE	LANG EXPR RS PR GE	MATH COMP RS PR GE	MATH APPL RS PR GE	REF SKILLS RS PR GE	READ TOTAL RS PR GE	LANG TOTAL RS PR GE	MATH TOTAL RS PR GE	TOTAL BATTERY RS PR GE
5231337	WALLS	CHARLES	T	19 70	30 87	11 49	14 63	30 79	15 40	17 37	20 66	049 81	044 75	032 37	136 64
	RACE B SEX M			4.9	6.4	4.0	4.6	6.3	3.7	3.6	5.0	5.6	5.4	3.7	4.5
5260441	WILSON	JOAN	N	08 19	20 61	11 49	12 48	17 19	15 40	16 34	22 80	028 44	029 27	031 35	099 34
	RACE W SEX F			3.0	4.6	4.0	4.0	2.8	3.7	3.5	6.1	4.0	3.3	3.6	3.6
5208090	WRAY	GARY	A	17 63	16 46	13 67	11 41	23 44	12 25	19 43	13 35	033 54	034 42	031 35	111 44
	RACE B SEX M			4.6	4.0	5.1	3.7	3.8	3.5	3.8	3.5	4.3	3.8	3.6	3.9
5272689	YORK	KIM	B	14 52	09 14	05 05	02 01	13 09	09 11	18 40	04 03	023 32	015 03	027 26	070 12
	RACE W SEX F			4.2	2.4	1.8	1.3	2.2	3.3	3.7	1.5	3.5	2.0	3.5	2.8
NO. 14	SECTION			14 52	17 50	11 49	13 55	24 49	16 45	21 49	16 46	030 48	036 48	037 47	115 47
				4.2	4.1	4.0	4.3	4.1	3.9	4.0	3.8	4.0	4.0	3.9	4.0
NO. 105	SCHOOL			10 31	14 38	11 49	11 41	20 30	15 40	17 37	12 31	025 37	031 33	032 37	100 35
				3.5	3.6	4.0	3.7	3.4	3.7	3.6	3.4	3.7	3.5	3.7	3.7

1. SUBTEST
2. RAW SCORE
3. PERCENTILE RANK
4. GRADE EQUIVALENT
5. SECTION AVERAGES
6. SCHOOL AVERAGES
7. NUMBER OF STUDENTS TESTED IN THE SECTION
8. NUMBER OF STUDENTS TESTED IN THE SCHOOL

Table 23

Key to Sample of California Achievement Test Results by Class

① **SUBTEST** — The CAT subtest is indicated by a two line abbreviation.

② **RAW SCORE (RS)** — A student's raw score is shown for each subtest. The raw score equals the total number of correct responses.

③ **PERCENTILE RANK (PR)** — A student's percentile rank is shown for each subtest. The percentile rank shows for a given student the percent of students in the national norm group whose scores fell below his. For example, if a student's percentile rank is 72, he/she equaled or exceeded 72% of the national norm group.

④ **GRADE EQUIVALENT (GE)** — A student's grade equivalent is shown for each subtest. On the CAT, grade equivalents range from 0.1 to 12.9. The numeral to the left of the decimal refers to the grade level, and the numeral to the right of the decimal refers to the school month. September is month 0; October is month 1; November is month 2, etc.

⑤ **SECTION AVERAGES** — The average raw score for all of the students in the homeroom section is shown for each subtest. The percentile rank and grade equivalent are also shown for the section on each subtest.

⑥ **SCHOOL AVERAGES** — The average raw score for all of the students in the school is shown for each subtest. The percentile rank and grade equivalent are also shown for the school on each subtest.

⑦ **NUMBER OF STUDENTS TESTED IN THE SECTION** — The total number of students tested in the homeroom section is indicated.

⑧ **NUMBER OF STUDENTS TESTED IN THE SCHOOL** — The total number of students tested in the school at that grade level is indicated.

Objective Mastery Report (OMR) Season Summary

Format of the OMR — Season Summary

The OMR - Season Summary is produced by grade level showing results by objective for each homeroom in the elementary grades. In grades 7-10, the OMR - Season Summary is produced separately for language arts/English teachers and for mathematics teachers. Results for secondary grades are shown for each period the teacher teaches language arts or mathematics. (Secondary language arts/English teachers receive results, for each language arts class they teach, on all subtests except the mathematics subtests. Secondary mathematics teachers receive results for only the mathematics subtests.)

Table 24 is a sample page of the OMR - Season Summary for a secondary mathematics teacher. Table 24 shows that Mathematics Teacher 60 teaches seventh grade mathematics during periods 2, 5, and 6. Results are shown by period on the Mathematics Computation and Mathematics Concepts and Applications subtests. For example, the information shown for period 2 in Table 24, reveals that 81% of the students mastered (MAS PCT) Objective 69 - Addition. Six percent of the students in period 2 had partial mastery (PART KNL PCT) of Objective 69, and 13% did not master (NON MAS PCT) Objective 69.

Interpreting and Using the OMR — Season Summary

The OMR - Season Summary is intended as a summary report which may be used to compare the progress of a class from fall to spring. That is, if the same students took the CAT in the spring as in the fall, then the fall summary report may be compared with the spring summary to determine the progress made by the class. For example, if the OMR - **Fall** Summary for a class showed that 32% of the students mastered a particular objective and the OMR -**Spring** Summary showed that 76% mastered the same objective, then progress of the class on the objective may be determined.

Table 24

Sample of Objective Mastery Report Season Summary

LOC 999 - AAA JUNIOR HIGH SCHOOL — OBJECTIVE MASTERY REPORT

CALIFORNIA ACHIEVEMENT TEST — SEASON SUMMARY

LEVEL 17 FORM D

GRADE 7

MATHEMATICS TEACHER 60

	PERIOD 02			PERIOD 05			PERIOD 06		
	NON MAS PCT	PART KNL PCT	MAS PCT	NON MAS PCT	PART KNL PCT	MAS PCT	NON MAS PCT	PART KNL PCT	MAS PCT
MATH COMPUTATION									
69 ADDITION	13	6	81	21	4	75	12	15	73
70 SUBTRACTION	10	6	84	7	11	82	4	4	92
71 MULTIPLICATION	16	13	71	7	4	89	4	4	92
72 DIVISION	29	3	68	14	14	71	12	8	81
MATH CONCPT/APPLIC									
73 NUMERATION	35	23	42	39	11	50	46	23	31
74 NUMBER THEORY	90	10	0	25	36	39	96	4	0
79 NUM SENT/PROPERTIES	29	16	55	18	50	32	15	42	42
81 GEOMETRY	32	29	39	36	32	32	31	46	23
82 MEASUREMENT	26	42	32	39	21	39	27	23	50
87 FUNCTIONS AND GRAPH	23	10	68	25	36	39	19	8	73
88 STORY PROBLEMS	35	26	39	54	25	21	35	19	46

Class Management Guide

The Class Management Guide published by CTB/McGraw Hill to accompany the California Achievement Tests is an invaluable aid to instructional personnel. The guide includes a section on instructional activities which corresponds to the CAT objectives. Suggested instructional activities are described for the CAT objectives at the various test levels. Suggested instructional activities which are shown in the guide are designed to be supplemental activities which can be used to introduce and reinforce specific skills which correspond to the CAT objectives. The activities are easily implemented in the classroom setting and require a minimum of teacher preparation.

The Class Management Guide includes several pages of illustrative test items. The illustrative test items are examples of the types of items on the CAT. The items are **not** identical to the actual test items, but they are similar. The illustrative test items are shown in the various formats which are used on the CAT. The test items in this section of the guide are presented according to the objective which is being measured.

The guide also includes such information as a description of (1) the skills measured by each subtest and objective, (2) the testing format and method of testing, and (3) using the CAT for class management. The guide is an excellent aid for instructional personnel and may be purchased from:

CTB/McGraw-Hill
DelMonte Research Park
Monterey, California 93940

APPENDIX A

Table 25

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 10 — Form C
Grade K

Objectives	Mastery Criterion		
	N@	P	M
Listening for Information			
1 School Vocabulary	0- 4	5	6- 7
2 Space/Direction/Location	0- 3	4	5
3 Relationships - Facts/Concepts	0- 2	3	4
Raw Score (Total)	0- 9	12	15-16
Percentile Rank	1-27* (1-11)**	57 (28)	91-98 (73-92)
Letter Forms			
4 Match Uppercase/Lowercase	0-11	12-13	14-18
Percentile Rank	1-56 (1-17)	61-64 (20-24)	68-94 (28-84)
Letter Names			
5 Recognize Uppercase/Lowercase	0-11	12-14	15-19
Percentile Rank	1-30 (1-7)	34-40 (9-12)	43-84 (14-73)
Letter Sounds			
6 Long Vowels (Picture/Letter)	0- 2	3	4
7 Short Vowels (Picture/Letter)	0- 3	4	5
8 Single Consonants (Picture/Letter)	0- 7	8- 9	10-12
Raw Score (Total)	0-12	15-16	19-21
Percentile Rank	1-70 (1-30)	83-86 (47-53)	94-98 (74-94)
Visual Discrimination			
9 Match Shapes	0- 4	5	6- 7
10 Match 3-Letter Words	0- 3	4	5- 6
11 Match 5/6 Letter Words	0- 3	4	5
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-49 (1-21)	69 (40)	92-99 (75-97)
Sound Matching			
12 Identical Words (Oral)	0- 5	6	7- 9
13 Medial Short Vowels (Oral Words)	0- 2	3	4
14 Initial Consonants (Oral Words)	0- 2	3	4
15 Final Consonants (Oral Words)	0- 3	4	5
16 Consonant Clusters/Digraphs (Oral Words)	0- 3	4	5- 6
Raw Score (Total)	0-15	20	25-28
Percentile Rank	1-39 (1-19)	52 (30)	74-97 (56-94)
Mathematics			
73 Numeration	0- 3	4	5- 6
75 Number and Set Theory	0- 2	3	4
76 Number Sentences	0- 2	3	4
80 Common Scales	0- 3	4	5- 6
88 Story Problems	0- 3	4	5- 6
Raw Score (Total)	0-13	18	23-26
Percentile Rank	1-48 (1-20)	84 (55)	99-99 (91-99)

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 26

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 11 — Form C

Grade 1

Objectives	Mastery Criterion		
	N@	P	M
Phonic Analysis			
17 Single Consonants	0- 3	4	5
18 Consonant Clusters	0- 3	4	5
19 Consonant Digraphs	0- 3	4	5
22 Short Vowels	0- 3	4	5
23 Long Vowels/Vowel Combinations	0- 3	4	5
Raw Score (Total)	0-15	20	25
Percentile Rank	1-83* (1-40)**	97 (68)	99 (96)
Grade Equivalent	—	—	—
Reading Vocabulary			
30 Category (Oral Definition)	0- 3	4	5
31 Same Meaning (Oral Definition)	0- 3	4	5
32 Same Meaning	0- 3	4	5
Raw Score (Total)	0- 9	12	15
Percentile Rank	1-85 (1-43)	94 (66)	99 (93)
Grade Equivalent	0.1-1.6	1.9	2.7
Reading Comprehension			
35 Literal Comprehension - Sentence Meaning	0- 4	5	6- 8
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
37 Interpretive Comprehension - Inferred Meaning/Character Analysis	0- 3	4	5
Raw Score (Total)	0-11	14	17-20
Percentile Rank	1-91 (1-54)	97 (74)	99-99 (86-98)
Grade Equivalent	0.1-1.7	2.1	2.5-3.7
Language Expression			
55 Usage - Nouns	0- 3	4	5
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
Raw Score (Total)	0-12	16	20
Percentile Rank	1-82 (1-40)	96 (71)	99 (94)
Grade Equivalent	0.1-1.5	2.0	3.2
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
Raw Score (Total)	0-12	14	16-20
Percentile Rank	1-86 (1-41)	92 (55)	95-99 (65-97)
Grade Equivalent	0.1-1.6	1.8	1.9-2.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 26

Level 11 — Form C (Cont'd.)

Grade 1

Objectives	Mastery Criterion		
	N@	P	M
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5
75 Number and Set Theory	0- 6	7	8-10
76 Number Sentences	0- 4	5	6- 7
80 Common Scales	0- 4	5	6- 7
86 Geometry/Measurement/Graphs	0- 4	5	6- 7
Raw Score (Total)	0-21	26	31-36
Percentile Rank	1-64 (1-25)	87 (51)	98-99 (78-99)
Grade Equivalent	0.1-1.3	1.7	2.3-3.8

Table 27

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 12 — Form C

Grade 2

Objectives	Mastery Criterion		
	N@	P	M
Phonic Analysis			
20 Variant Single Consonants	0- 3	4	5
21 Consonant Clusters/Digraphs	0- 3	4	5
23 Long Vowels/Vowel Combinations	0- 5	6	7- 9
24 Short Vowels/Vowel Combinations	0- 3	4	5- 6
Raw Score (Total)	0-14	18	22-25
Percentile Rank	1-52* (1-33)**	69 (49)	82-97 (64-93)
Grade Equivalent	—	—	—
Structural Analysis			
28 Compound Words/Syllables/Contractions	0- 3	4	5- 6
29 Base Words/Affixes	0- 3	4	5
Raw Score (Total)	0- 6	8	10-11
Percentile Rank	1-54 (1-29)	82 (59)	96-99 (83-94)
Grade Equivalent	—	—	—
Reading Vocabulary			
32 Same Meaning	0- 4	5	6- 8
33 Opposite Meaning	0- 4	5	6- 7
Raw Score (Total)	0- 8	10	12-15
Percentile Rank	1-47 (1-27)	57 (34)	66-94 (43-87)
Grade Equivalent	0.1-2.0	2.3	2.5-4.0
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 3	4	5- 6
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 8
39 Interpretive Comprehension - Character Analysis	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-20
Percentile Rank	1-54 (1-34)	65 (45)	77-98 (57-94)
Grade Equivalent	0.1-2.2	2.5	3.0-4.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 2	3	4
46 Morphemic Units	0- 2	3	4
Raw Score (Total)	0- 7	10	13
Percentile Rank	1-5 (1-2)	17 (8)	38 (21)
Grade Equivalent	0.1-0.4	1.3	1.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

62

Table 27

Level 12 — Form C (Cont'd.)

Grade 2

Objectives	Mastery Criterion		
	N	P	M
Language Mechanics			
47 Capitalization - I/Proper Nouns	0- 2	3	4
49 Capitalization - Beginning Words	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
Raw Score (Total)	0- 9	13	17
Percentile Rank	1-34 (1-18)	65 (41)	91 (74)
Grade Equivalent	0.1-1.8	2.5	3.6
Language Expression			
56 Usage - Irregular Nouns/Verbs	0- 3	4	5
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
Raw Score (Total)	0-12	16	20
Percentile Rank	1-35 (1-20)	61 (41)	93 (87)
Grade Equivalent	0.1-1.8	2.4	4.4
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 3	4	5- 6
Raw Score (Total)	0-15	18	21-26
Percentile Rank	1-70 (1-32)	81 (46)	89-99 (59-96)
Grade Equivalent	0.1-2.4	2.8	3.0-3.7
Mathematics Concepts and Applications			
73 Numeration	0- 5	6	7- 9
75 Number and Set Theory	0- 5	6	7- 9
79 Number Sentences/Properties	0- 4	5	6- 7
80 Common Scales	0- 4	5	6- 7
85 Measurement/Graphs	0- 4	5	6- 8
Raw Score (Total)	0-22	27	32-40
Percentile Rank	1-42 (1-23)	66 (42)	86-99 (64-99)
Grade Equivalent	0.1-1.9	2.5	3.1-5.5

Table 28

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 13 — Form C

Grade 3

Objectives	Mastery Criterion		
	N@	P	M
Phonic Analysis			
21 Consonant Clusters/Digraphs	0- 3	4	5
25 Short, Long Vowels/Vowel Combinations	0- 3	4	5
26 Diphthongs	0- 3	4	5
27 Variant Vowels/Vowel Combinations	0- 3	4	5
Raw Score (Total)	0-12	16	20
Percentile Rank	1-49* (1-33)**	49 (56)	97 (94)
Grade Equivalent	—	—	—
Structural Analysis			
28 Compound Words/Syllables/Contractions	0- 3	4	5- 6
29 Base Words/Affixes	0- 3	4	5
Raw Score (Total)	0- 6	8	10-11
Percentile Rank	1-32 (1-19)	58 (40)	83-94 (69-88)
Grade Equivalent	—	—	—
Reading Vocabulary			
32 Same Meaning	0- 3	4	5
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0- 9	12	15
Percentile Rank	1-42 (1-27)	66 (47)	96 (91)
Grade Equivalent	0.1-2.7	3.6	5.8
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 3	4	5
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Character Analysis	0- 3	4	5
40 Figurative Language	0- 3	4	5
41 Critical Comp. - Real/Unreal Elements	0- 3	4	5
Raw Score (Total)	0-16	21	26-27
Percentile Rank	1-37 (1-23)	57 (41)	94-98 (86-96)
Grade Equivalent	0.1-2.5	3.4	5.6-6.7
Spelling			
44 Consonant Phonemes/Graphemes	0- 2	3	4
45 Vowel Phonemes/Graphemes	0- 3	4	5- 6
46 Morphemic Units	0- 2	3	4
Raw Score (Total)	0- 7	10	13-14
Percentile Rank	1-3 (1-2)	14 (7)	38-49 (23-32)
Grade Equivalent	0.1-0.9	1.8	2.6-3.0

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 28

Level 13 — Form C (Cont'd.)

Grade 3

Objectives	Mastery Criterion		
	N	P	M
Language Mechanics			
47 Capitalization - I/Proper Nouns	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
Raw Score (Total)	0-10	14	18
Percentile Rank	1-43 (1-27)	72 (55)	93 (83)
Grade Equivalent	0.1-2.8	3.9	5.6
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
61 Modifying Words - Adjective/Adverb	0- 3	4	5
Raw Score (Total)	0-15	20	25-26
Percentile Rank	1-31 (1-19)	57 (40)	94-98 (87-96)
Grade Equivalent	0.1-2.3	3.3	6.7-8.3
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-89 (1-46)	95 (59)	98-99 (72-99)
Grade Equivalent	0.1-3.7	3.9	4.3-6.0
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5
74 Number Theory	0- 3	4	5
79 Number Sentences/Properties	0- 3	4	5- 6
80 Common Scales	0- 3	4	5
81 Geometry	0- 3	4	5
82 Measurement	0- 4	5	6- 7
84 Graphs	0- 4	5	6- 8
88 Story Problems	0- 2	3	4
Raw Score (Total)	0-25	33	41-45
Percentile Rank	1-56 (1-36)	80 (60)	97-99 (91-99)
Grade Equivalent	0.1-3.3	4.1	5.7-8.0

Table 29

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 14 — Form C

Grade 4

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-54* (1-40)**	65-71 (50-56)	81-98 (68-95)
Grade Equivalent	1.3-4.3	4.7-5.0	5.7-8.3
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 5	6	7- 9
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 8
39 Interpretive Comprehension - Character Analysis	0- 6	7	8-10
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 8
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
Raw Score (Total)	0-22	27	32-40
Percentile Rank	1-58 (1-45)	71 (58)	85-99 (74-99)
Grade Equivalent	1.3-4.4	5.2	6.2-12.2
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5- 6
45 Vowel Phonemes/Graphemes	0- 4	5	6- 8
46 Morphemic Units	0- 2	3	4
Raw Score (Total)	0- 9	12	15-18
Percentile Rank	1-26 (1-20)	54 (45)	81-96 (73-93)
Grade Equivalent	1.3-3.0	4.4	6.5-10.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-49 (1-36)	83 (68)	98 (95)
Grade Equivalent	1.3-4.0	6.1	10.7

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 29

Level 14 — Form C (Cont'd.)

Grade 4

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
63 Sentence Structure - Complete/Incomplete/Run-on	0- 3	4	5
66 Paragraph Organization - Sequence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-37 (1-29)	65 (51)	96-99 (91-99)
Grade Equivalent	1.3-3.6	4.7	9.0-12.2
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-80 (1-52)	92 (68)	98-99 (83-99)
Grade Equivalent	1.3-4.8	5.4	6.1-8.5
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5
74 Number Theory	0- 3	4	5
76 Number Sentences	0- 3	4	5
78 Number Properties	0- 2	3	4
80 Common Scales	0- 3	4	5- 6
81 Geometry	0- 3	4	5
82 Measurement	0- 3	4	5- 6
84 Graphs	0- 2	3	4
88 Story Problems	0- 3	4	5
Raw Score (Total)	0-25	34	43-45
Percentile Rank	1-60 (1-45)	88 (73)	99-99 (99-99)
Grade Equivalent	1.3-4.5	5.8	8.9-10.9
Reference Skills			
89 Title Page/Copyright Page	0- 4	5	6- 7
90 Table of Contents	0- 3	4	5
91 Index	0- 3	4	5
92 Dictionary Page	0- 2	3	4
93 Map	0- 2	3	4
Raw Score (Total)	0-14	19	24-25
Percentile Rank	1-40 (1-30)	65 (52)	99-99 (97-99)
Grade Equivalent	1.3-3.7	4.9	10.3-12.2

Table 30

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 15 — Form C

Grade 5

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-42* (1-33)**	56-66 (44-53)	83-99 (72-98)
Grade Equivalent	1.3-4.7	5.4-5.9	7.1-10.7
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 8
38 Interpretive Comprehension - Inferred Meaning	0- 5	6	7- 9
39 Interpretive Comprehension - Character Analysis	0- 6	7	8-10
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 8
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
Raw Score (Total)	0-22	27	32-40
Percentile Rank	1-53 (1-42)	68 (57)	81-99 (73-99)
Grade Equivalent	1.3-5.3	6.2	7.5-12.2
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 4	5	6- 7
46 Morphemic Units	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-34 (1-28)	60 (53)	83-94 (77-91)
Grade Equivalent	1.3-4.1	5.9	8.5-11.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-45 (1-35)	77 (65)	97 (93)
Grade Equivalent	1.3-4.6	7.5	12.1

@N indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 30

Level 15 — Form C (Cont'd.)

Grade 5

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
63 Sentence Structure - Complete/Incomplete/Run-on	0- 3	4	5
66 Paragraph Organization - Sequence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-30 (1-26)	61 (53)	95-99 (93-99)
Grade Equivalent	1.3-4.0	6.2	10.7-12.2
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-71 (1-52)	84 (67)	93-99 (81-99)
Grade Equivalent	1.3-5.9	6.5	7.3-11.7
Mathematics Concepts and Applications			
73 Numeration	0- 4	5	6- 7
74 Number Theory	0- 4	5	6- 7
76 Number Sentences	0- 3	4	5
78 Number Properties	0- 3	4	5
80 Common Scales	0- 3	4	5
86 Geometry/Measurements/Graphs	0- 6	7- 8	9-11
88 Story Problems	0- 3	4	5
Raw Score (Total)	0-26	33-34	41-45
Percentile Rank	1-63 (1-49)	83-85 (68-71)	99-99 (94-99)
Grade Equivalent	1.3-5.6	6.7-6.9	8.8-12.2
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 5	6	7- 9
94 Table	0- 3	4	5
95 Library Catalog Cards	0- 3	4	5- 6
Raw Score (Total)	0-14	18	22-25
Percentile Rank	1-29 (1-22)	50 (38)	78-98 (67-97)
Grade Equivalent	1.3-3.8	5.0	7.4-11.3

Table 31

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 16 — Form C

Grade 6

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-48* (1-41)**	62-72 (54-63)	88-99 (81-99)
Grade Equivalent	2.0-6.0	7.0-7.9	9.0-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 3	4	5- 6
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 8
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5- 6
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-21	27	33-40
Percentile Rank	1-43 (1-35)	64 (54)	86-99 (78-99)
Grade Equivalent	2.0-5.6	7.1	9.1-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 4	5	6- 8
46 Morphemic Units	0- 3	4	5
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-28 (1-26)	56 (53)	83-95 (80-93)
Grade Equivalent	2.0-4.6	7.1	10.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-31 (1-27)	60 (52)	94 (90)
Grade Equivalent	2.0-4.5	7.0	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 31

Level 16 — Form C (Cont'd.)

Grade 6

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
63 Sentence Structure - Complete/Incomplete/Run-on	0- 3	4	5
67 Paragraph Organization - Sequence/Topic Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-31 (1-27)	65 (56)	97-99 (95-99)
Grade Equivalent	2.0-4.4	7.2	12.6-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-70 (1-51)	87 (68)	96-99 (83-99)
Grade Equivalent	2.0-6.7	7.7	8.3-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5- 6
74 Number Theory	0- 3	4	5- 6
76 Number Sentences	0- 3	4	5- 6
78 Number Properties	0- 2	3	4
83 Geometry/Measurement	0- 3	4	5- 6
84 Graphs	0- 4	5	6- 8
88 Story Problems	0- 5	6	7- 9
Raw Score (Total)	0-23	30	37-45
Percentile Rank	1-55 (1-43)	81 (69)	95-99 (89-99)
Grade Equivalent	2.0-6.3	8.0	9.5-12.9
Reference Skills			
92 Dictionary Page	0- 2	3	4
93 Map	0- 3	4	5
94 Table	0- 2	3	4
95 Library Catalog Cards	0- 3	4	5- 6
96 Diagram	0- 3	4	5- 6
Raw Score (Total)	0-13	18	23-25
Percentile Rank	1-36 (1-28)	64 (55)	96-99 (91-99)
Grade Equivalent	2.0-5.0	7.3	11.1-12.9

Table 32

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 17 — Form C

Grade 7

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-57* (1-51)**	69-77 (62-70)	88-99 (82-98)
Grade Equivalent	2.0-7.8	8.4-9.0	10.3-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 3	4	5- 6
38 Interpretive Comprehension - Inferred Meaning	0- 5	6	7- 9
39 Interpretive Comprehension - Character Analysis	0- 3	4	5- 6
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
43 Critical Comprehension - Techniques of Persuasion	0- 4	5	6- 7
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-61 (1-54)	78 (71)	92-99 (86-99)
Grade Equivalent	2.0-8.0	9.5	11.6-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5- 6
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 4	5	6- 7
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-33 (1-32)	55 (54)	79-92 (78-91)
Grade Equivalent	2.0-5.4	8.5	10.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 3	4	5
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 2	3	4
Raw Score (Total)	0-13	18	23
Percentile Rank	1-40 (1-35)	69 (63)	96 (94)
Grade Equivalent	2.0-5.8	9.0	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 32

Level 17 — Form C (Cont'd.)

Grade 7

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-42 (1-37)	77 (70)	98-99 (96-99)
Grade Equivalent	2.0-6.4	9.5	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-81 (1-69)	89 (78)	94-99 (87-99)
Grade Equivalent	2.0-8.6	9.2	11.0-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5- 6
74 Number Theory	0- 3	4	5
79 Number Sentences/Properties	0- 2	3	4
81 Geometry	0- 3	4	5
82 Measurement	0- 6	7- 8	9-11
87 Functions and Graphs	0- 4	5	6- 7
88 Story Problems	0- 4	5	6- 7
Raw Score (Total)	0-25	32-33	40-45
Percentile Rank	1-66 (1-58)	85-87 (77-80)	97-99 (95-99)
Grade Equivalent	2.0-8.0	9.6-10.0	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 3	4	5
95 Library Catalog Cards	0- 2	3	4
96 Diagram	0- 3	4	5- 6
Raw Score (Total)	0-14	19	24-25
Percentile Rank	1-25 (1-22)	46 (40)	90-97 (85-96)
Grade Equivalent	2.0-4.9	6.6	10.9-12.9

Table 33

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form C

Grade 8

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-69* (1-62)**	79-85 (71-77)	92-99 (87-99)
Grade Equivalent	2.0-9.9	10.6-11.1	12.8-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 7
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5- 6
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-49 (1-41)	74 (66)	94-99 (90-99)
Grade Equivalent	2.0-8.0	10.5	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 4	5	6- 7
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-35 (1-36)	64 (64)	87-96 (87-96)
Grade Equivalent	2.0-7.1	10.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-31 (1-27)	63 (57)	96 (93)
Grade Equivalent	2.0-5.8	9.9	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 33

Level 18 — Form C (Cont'd.)

Grade 8

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-36 (1-31)	71 (62)	98-99 (95-99)
Grade Equivalent	2.0-6.8	10.2	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-60 (1-53)	72 (65)	83-99 (76-99)
Grade Equivalent	2.0-9.0	10.5	12.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 5	6	7- 9
77 Number Theory/Sentences	0- 4	5	6- 7
81 Geometry	0- 3	4	5- 6
82 Measurement	0- 6	7	8-10
87 Functions and Graphs	0- 3	4	5- 6
88 Story Problems	0- 4	5	6- 7
Raw Score (Total)	0-25	31	37-45
Percentile Rank	1-59 (1-51)	77 (69)	92-99 (86-99)
Grade Equivalent	2.0-8.8	10.1	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 3	4	5
97 Form	0- 3	4	5
98 Readers' Guide	0- 3	4	5
Raw Score (Total)	0-15	20	25
Percentile Rank	1-31 (1-26)	62 (55)	99 (99)
Grade Equivalent	2.0-6.6	9.5	12.9

Table 34

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form C

Grade 9

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-54* (1-51)**	65-72 (61-68)	84-99 (80-98)
Grade Equivalent	2.0-9.9	10.6-11.1	12.8-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 7
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5- 6
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-38 (1-35)	63 (59)	90-99 (86-99)
Grade Equivalent	2.0-8.0	10.5	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 4	5	6- 7
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-27 (1-30)	54 (57)	80-93 (82-94)
Grade Equivalent	2.0-7.1	10.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-25 (1-23)	54 (51)	93 (91)
Grade Equivalent	2.0-5.8	9.9	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 34

Level 18 — Form C (Cont'd.)

Grade 9

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-27 (1-26)	61 (54)	95-99 (93-99)
Grade Equivalent	2.0-6.8	10.2	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-44 (1-42)	58 (55)	71-99 (67-98)
Grade Equivalent	2.0-9.0	10.5	12.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 5	6	7- 9
77 Number Theory/Sentences	0- 4	5	6- 7
81 Geometry	0- 3	4	5- 6
82 Measurement	0- 6	7	8-10
87 Functions and Graphs	0- 3	4	5- 6
88 Story Problems	0- 4	5	6- 7
Raw Score (Total)	0-25	31	37-45
Percentile Rank	1-44 (1-40)	63 (57)	84-99 (77-99)
Grade Equivalent	2.0-8.8	10.1	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 3	4	5
97 Form	0- 3	4	5
98 Readers' Guide	0- 3	4	5
Raw Score (Total)	0-15	20	25
Percentile Rank	1-25 (1-23)	53 (48)	99 (99)
Grade Equivalent	2.0-6.6	9.5	12.9

Table 35

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 19 — Form C

Grade 10

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-64* (1-57)**	76-82 (69-77)	91-99 (88-99)
Grade Equivalent	2.0-11.3	12.9-12.9	12.9-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 5	6	7- 9
39 Interpretive Comprehension - Character Analysis	0- 3	4	5- 6
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-47 (1-42)	71 (64)	91-99 (87-99)
Grade Equivalent	2.0-10.0	12.9	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 4	5	6- 8
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-51 (1-50)	75 (74)	92-98 (91-97)
Grade Equivalent	2.0-10.5	12.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 3	4	5
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 2	3	4
Raw Score (Total)	0-13	18	23
Percentile Rank	1-37 (1-33)	70 (65)	96 (94)
Grade Equivalent	2.0-8.2	12.9	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 35

Level 19 — Form C (Cont'd.)

Grade 10

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-39 (1-35)	75 (69)	98-99 (96-99)
Grade Equivalent	2.0-8.7	12.9	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-53 (1-52)	66 (64)	77-99 (74-99)
Grade Equivalent	2.0-11.0	12.5	12.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 4	5	6- 7
74 Number Theory	0- 3	4	5- 6
79 Number Sentences/Properties	0- 4	5	6- 7
81 Geometry	0- 3	4	5
82 Measurement	0- 3	4	5- 6
87 Functions and Graphs	0- 3	4	5- 6
88 Story Problems	0- 4	5	6- 8
Raw Score (Total)	0-24	31	38-45
Percentile Rank	1-50 (1-46)	73 (69)	91-99 (87-99)
Grade Equivalent	2.0-10.0	12.9	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5- 6
93 Map	0- 3	4	5
97 Form	0- 4	5	6- 8
98 Readers' Guide	0- 3	4	5- 6
Raw Score (Total)	0-13	17	21-25
Percentile Rank	1-30 (1-26)	53 (45)	77-99 (70-98)
Grade Equivalent	2.0-8.0	10.3	12.9-12.9

APPENDIX B

80

Table 36

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 10 — Form C

Grade K

Subtests	Mastery Criterion		
	N@	P	M
Total Alphabet Skills			
Raw Score (Total)	0-22	24-27	29-37
Percentile Rank	1-41* (1-9)**	48-56 (12-17)	61-95 (21-87)
Total Visual & Auditory Discrimination			
Raw Score (Total)	0-25	33	41-46
Percentile Rank	1-40 (1-17)	61 (33)	88-99 (68-99)
Total Prereading			
Raw Score (Total)	0-68	84-88	104-120
Percentile Rank	1-37 (1-9)	62-68 (22-27)	88-99 (55-99)

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year.

Table 37

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 11 — Form C

Grade 1

Subtests	Mastery Criterion		
	N@	P	M
Total Reading			
Raw Score (Total)	0-35	46	57-60
Percentile Rank	1-89* (1-44)**	97 (72)	99-99 (93-99)
Grade Equivalent	0.1-1.6	2.1	2.8-3.6
Total Mathematics			
Raw Score (Total)	0-33	40	47-56
Percentile Rank	1-76 (1-30)	92 (54)	98-99 (76-99)
Grade Equivalent	0.1-1.4	1.7	2.1-3.5
Total Battery			
Raw Score (Total)	0-80	102	124-136
Percentile Rank	1-86 (1-38)	97 (65)	99-99 (90-99)
Grade Equivalent	0.1-1.6	1.9	2.5-3.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 38

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 12 — Form C

Grade 2

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-38	49	60-71
	Percentile Rank	1-49* (1-28)**	67 (43)	84-99 (62-99)
	Grade Equivalent	0.1-2.1	2.5	3.2-5.8
Total Language				
	Raw Score (Total)	0-21	29	37
	Percentile Rank	1-33 (1-16)	66 (40)	94 (83)
	Grade Equivalent	0.1-1.9	2.5	3.9
Total Mathematics				
	Raw Score (Total)	0-37	45	53-66
	Percentile Rank	1-56 (1-26)	76 (44)	90-99 (63-99)
	Grade Equivalent	0.1-2.2	2.6	3.2-4.7
Total Battery				
	Raw Score (Total)	0-103	133	163-187
	Percentile Rank	1-39 (1-18)	65 (37)	89-99 (62-95)
	Grade Equivalent	0.1-1.9	2.4	3.1-4.2

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 39

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 13 — Form C

Grade 3

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-43	57	71-73
	Percentile Rank	1-38* (1-22)**	65 (46)	98-99 (94-99)
	Grade Equivalent	0.1-2.6	3.6	6.4-7.9
Total Language				
	Raw Score (Total)	0-25	34	43-44
	Percentile Rank	1-35 (1-20)	66 (46)	96-98 (90-94)
	Grade Equivalent	0.1-2.6	3.6	6.8-7.9
Total Mathematics				
	Raw Score (Total)	0-49	61	73-85
	Percentile Rank	1-74 (1-38)	91 (61)	98-99 (83-99)
	Grade Equivalent	0.1-3.5	4.0	4.8-7.0
Total Battery				
	Raw Score (Total)	0-124	162	200-216
	Percentile Rank	1-45 (1-22)	76 (46)	98-99 (86-99)
	Grade Equivalent	0.1-2.9	3.6	5.1-6.8

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 40

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 14 — Form C

Grade 4

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	48-50	58-70
	Percentile Rank	1-56* (1-42)**	70-73 (55-58)	85-99 (72-99)
	Grade Equivalent	1.3-4.3	4.9-5.1	5.9-12.0
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-40 (1-30)	75 (59)	99-99 (95-99)
	Grade Equivalent	1.3-3.7	5.4	10.4-12.2
Total Mathematics				
	Raw Score (Total)	0-49	62	75-85
	Percentile Rank	1-70 (1-47)	91 (73)	99-99 (95-99)
	Grade Equivalent	1.3-4.6	5.5	7.2-10.2
Total Battery				
	Raw Score (Total)	0-132	168-170	206-234
	Percentile Rank	1-54 (1-37)	80-81 (60-62)	98-99 (92-99)
	Grade Equivalent	1.3-4.2	5.2-5.2	7.3-12.2

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 41

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 15 — Form C

Grade 5

Subtests	Mastery Criterion		
	N@	P	M
Total Reading			
Raw Score (Total)	0-40	48-50	58-70
Percentile Rank	1-48* (1-38)**	64-67 (52-56)	84-99 (74-99)
Grade Equivalent	1.3-5.0	5.8-6.0	7.2-12.2
Total Language			
Raw Score (Total)	0-34	46	58-61
Percentile Rank	1-36 (1-28)	70 (59)	98-99 (96-99)
Grade Equivalent	1.3-4.3	6.6	11.8-12.2
Total Mathematics			
Raw Score (Total)	0-50	61-62	73-85
Percentile Rank	1-68 (1-49)	86-87 (69-71)	98-99 (90-99)
Grade Equivalent	1.3-5.7	6.6-6.7	8.0-12.2
Total Battery			
Raw Score (Total)	0-134	168-171	205-234
Percentile Rank	1-50 (1-37)	76-78 (60-62)	97-99 (90-99)
Grade Equivalent	1.3-5.1	6.2-6.3	8.0-12.2

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 42

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 16 — Form C

Grade 6

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-39	48-50	59-70
	Percentile Rank	1-45* (1-37)**	64-69 (54-59)	88-99 (81-99)
	Grade Equivalent	2.0-5.8	7.0-7.4	9.0-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-30 (1-26)	64 (54)	98-99 (96-99)
	Grade Equivalent	2.0-4.5	7.0	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-47	58	69-85
	Percentile Rank	1-63 (1-47)	86 (70)	97-99 (88-99)
	Grade Equivalent	2.0-6.6	7.9	9.0-12.5
Total Battery				
	Raw Score (Total)	0-130	165-167	202-234
	Percentile Rank	1-44 (1-34)	73-75 (59-61)	97-99 (91-99)
	Grade Equivalent	2.0-5.7	7.3-7.4	9.8-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 43

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 17 — Form C

Grade 7

Subtests	Mastery Criterion		
	N@	P	M
Total Reading			
Raw Score (Total)	0-40	49-51	60-70
Percentile Rank	1-59* (1-52)**	76-79 (68-71)	92-99 (86-99)
Grade Equivalent	2.0-7.9	8.9-9.1	11.0-12.9
Total Language			
Raw Score (Total)	0-34	46	58-61
Percentile Rank	1-40 (1-36)	75 (68)	99-99 (97-99)
Grade Equivalent	2.0-6.3	9.5	12.9-12.9
Total Mathematics			
Raw Score (Total)	0-49	60-61	72-85
Percentile Rank	1-75 (1-64)	88-89 (79-80)	97-99 (91-99)
Grade Equivalent	2.0-8.2	9.5-9.7	11.9-12.5
Total Battery			
Raw Score (Total)	0-133	168-171	206-234
Percentile Rank	1-59 (1-49)	82-83 (72-74)	97-99 (94-99)
Grade Equivalent	2.0-7.6	9.0-9.0	12.3-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 44

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form C

Grade 8

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	49-51	60-70
	Percentile Rank	1-60* (1-52)**	77-81 (69-73)	95-99 (90-99)
	Grade Equivalent	2.0-8.9	10.5-11.0	12.9-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-32 (1-28)	70 (61)	98-99 (96-99)
	Grade Equivalent	2.0-6.5	10.2	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-49	59	69-85
	Percentile Rank	1-60 (1-52)	77 (68)	89-99 (82-99)
	Grade Equivalent	2.0-8.9	10.0	12.5-12.5
Total Battery				
	Raw Score (Total)	0-133	167-169	203-234
	Percentile Rank	1-50 (1-43)	76-78 (68-69)	96-99 (92-99)
	Grade Equivalent	2.0-8.1	10.1-10.3	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 45

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form C

Grade 9

Subtests	Mastery Criterion		
	N@	P	M
Total Reading			
Raw Score (Total)	0-40	49-51	60-70
Percentile Rank	1-46* (1-43)**	65-69 (60-64)	88-99 (85-99)
Grade Equivalent	2.0-8.9	10.5-11.0	12.9-12.9
Total Language			
Raw Score (Total)	0-34	46	58-61
Percentile Rank	1-24 (1-23)	59 (54)	96-99 (95-99)
Grade Equivalent	2.0-6.5	10.2	12.9-12.9
Total Mathematics			
Raw Score (Total)	0-49	59	69-85
Percentile Rank	1-44 (1-40)	62 (57)	78-99 (72-99)
Grade Equivalent	2.0-8.9	10.0	12.5-12.5
Total Battery			
Raw Score (Total)	0-133	167-169	203-234
Percentile Rank	1-36 (1-34)	63-64 (57-59)	90-99 (86-99)
Grade Equivalent	2.0-8.1	10.1-10.3	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 46

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 19 — Form C

Grade 10

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	49-51	60-70
	Percentile Rank	1-55* (1-49)**	74-78 (67-71)	93-99 (88-99)
	Grade Equivalent	2.0-10.6	12.9-12.9	12.9-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-38 (1-33)	75 (68)	98-99 (97-99)
	Grade Equivalent	2.0-8.5	12.9	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-48	59	70-85
	Percentile Rank	1-51 (1-49)	70 (67)	86-99 (82-99)
	Grade Equivalent	2.0-10.4	12.5	12.5-12.5
Total Battery				
	Raw Score (Total)	0-132	167-169	204-234
	Percentile Rank	1-48 (1-43)	74-75 (69-70)	95-99 (92-99)
	Grade Equivalent	2.0-10.0	12.9-12.9	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

APPENDIX C

Table 47

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 13 — Form D

Grade 3

Objectives	Mastery Criterion		
	N@	P	M
Phonic Analysis			
21 Consonant Clusters/Digraphs	0- 3	4	5
25 Short, Long Vowels/Vowel Combinations	0- 3	4	5
26 Diphthongs	0- 3	4	5
27 Variant Vowels/Vowel Combinations	0- 3	4	5
Raw Score (Total)	0-12	16	20
Percentile Rank	1-53* (1-37)**	70 (57)	95 (92)
Grade Equivalent	—	—	—
Structural Analysis			
28 Compound Words/Syllables/Contractions	0- 3	4	5- 6
29 Base Words/Affixes	0- 3	4	5
Raw Score (Total)	0- 6	8	10-11
Percentile Rank	1-41 (1-26)	69 (52)	91-97 (82-94)
Grade Equivalent	—	—	—
Reading Vocabulary			
32 Same Meaning	0- 3	4	5
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0- 9	12	15
Percentile Rank	1-51 (1-34)	75 (57)	98 (96)
Grade Equivalent	0.1-3.0	3.9	6.4
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 3	4	5
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Character Analysis	0- 3	4	5
40 Figurative Language	0- 3	4	5
41 Critical Comp. - Real/Unreal Elements	0- 3	4	5
Raw Score (Total)	0-16	21	26-27
Percentile Rank	1-44 (1-29)	64 (48)	95-99 (89-98)
Grade Equivalent	0.1-2.8	3.6	5.9-7.5
Spelling			
44 Consonant Phonemes/Graphemes	0- 2	3	4
45 Vowel Phonemes/Graphemes	0- 3	4	5- 6
46 Morphemic Units	0- 2	3	4
Raw Score (Total)	0- 7	10	13-14
Percentile Rank	1-2 (1-1)	14 (7)	44-56 (27-38)
Grade Equivalent	0.1-0.7	1.8	2.7-3.3

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 47

Level 13 — Form D (Cont'd.)

Grade 3

Objectives	Mastery Criterion		
	N	P	M
Language Mechanics			
47 Capitalization - I/Proper Nouns	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
Raw Score (Total)	0-10	14	18
Percentile Rank	1-39 (1-24)	70 (52)	93 (82)
Grade Equivalent	0.1-2.7	3.8	5.5
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
61 Modifying Words Adjective/Adverb	0- 3	4	5
Raw Score (Total)	0-15	20	25-26
Percentile Rank	1-28 (1-17)	55 (38)	91-98 (83-94)
Grade Equivalent	0.1-2.2	3.3	6.2-8.0
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-93 (1-55)	97 (66)	99-99 (78-99)
Grade Equivalent	0.1-3.9	4.1	4.5-6.3
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5
74 Number Theory	0- 3	4	5
79 Number Sentences/Properties	0- 3	4	5- 6
80 Common Scales	0- 3	4	5
81 Geometry	0- 3	4	5
82 Measurement	0- 4	5	6- 7
84 Graphs	0- 4	5	6- 8
88 Story Problems	0- 2	3	4
Raw Score (Total)	0-25	33	41-45
Percentile Rank	1-64 (1-42)	87 (69)	98-99 (93-99)
Grade Equivalent	0.1-3.5	4.5	6.0-7.9

Table 48

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 14 — Form D

Grade 4

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-67* (1-52)**	76-81 (62-68)	89-99 (78-98)
Grade Equivalent	1.3-4.8	5.3-5.7	6.5-9.0
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 5	6	7- 9
38 Interpretive Comprehension - Inferred Meaning	0- 6	7	8-10
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 8
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 8
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
Raw Score (Total)	0-22	27	32-40
Percentile Rank	1-66 (1-53)	79 (67)	91-99 (82-99)
Grade Equivalent	1.3-4.9	5.7	7.1-12.2
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5- 6
45 Vowel Phonemes/Graphemes	0- 4	5	6- 7
46 Morphemic Units	0- 3	4	5
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-40 (1-32)	67 (58)	88-96 (81-93)
Grade Equivalent	1.3-3.7	5.1	8.5-10.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-55 (1-41)	86 (72)	99 (96)
Grade Equivalent	1.3-4.3	6.7	11.0

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 48

Level 14 — Form D (Cont'd.)

Grade 4

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
63 Sentence Structure - Complete/Incomplete/Run-on	0- 3	4	5
66 Paragraph Organization - Sequence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-34 (1-27)	69 (55)	98-99 (93-99)
Grade Equivalent	1.3-3.6	5.1	9.8-12.2
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-84 (1-57)	93 (71)	98-99 (83-99)
Grade Equivalent	1.3-5.0	5.5	6.0-8.6
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5
74 Number Theory	0- 3	4	5
76 Number Sentences	0- 3	4	5
78 Number Properties	0- 2	3	4
80 Common Scales	0- 3	4	5- 6
81 Geometry	0- 3	4	5
82 Measurement	0- 3	4	5- 6
84 Graphs	0- 2	3	4
88 Story Problems	0- 3	4	5
Raw Score (Total)	0-25	34	43-45
Percentile Rank	1-61 (1-46)	87 (72)	99-99 (98-99)
Grade Equivalent	1.3-4.5	5.7	8.3-10.0
Reference Skills			
89 Title Page/Copyright Page	0- 4	5	6- 7
90 Table of Contents	0- 3	4	5
91 Index	0- 3	4	5
92 Dictionary Page	0- 2	3	4
93 Map	0- 2	3	4
Raw Score (Total)	0-14	19	24-25
Percentile Rank	1-39 (1-28)	60 (48)	94-98 (88-96)
Grade Equivalent	1.3-3.6	4.6	8.1-10.0

Table 49

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 15 — Form D

Grade 5

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-49* (1-39)**	64-72 (51-60)	85-99 (76-99)
Grade Equivalent	1.3-5.1	5.8-6.2	7.5-11.0
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 5	6	7- 9
38 Interpretive Comprehension - Inferred Meaning	0- 6	7	8-10
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 8
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 8
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
Raw Score (Total)	0-22	27	32-40
Percentile Rank	1-63 (1-52)	78 (68)	90-99 (84-99)
Grade Equivalent	1.3-5.8	7.1	8.4-12.2
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 4	5	6- 7
46 Morphemic Units	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-35 (1-30)	60 (53)	83-94 (77-91)
Grade Equivalent	1.3-4.3	6.0	8.5-11.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-38 (1-30)	68 (56)	96 (91)
Grade Equivalent	1.3-4.4	6.4	11.2

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 49

Level 15 — Form D (Cont'd.)

Grade 5

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
63 Sentence Structure - Complete/Incomplete/Run-on	0- 3	4	5
66 Paragraph Organization - Sequence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-24 (1-21)	53 (47)	93-99 (89-99)
Grade Equivalent	1.3-3.7	5.4	10.0-12.2
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-73 (1-54)	85 (69)	95-99 (84-99)
Grade Equivalent	1.5-5.9	6.6	7.5-12.2
Mathematics Concepts and Applications			
73 Numeration	0- 4	5	6- 7
74 Number Theory	0- 4	5	6- 7
76 Number Sentences	0- 3	4	5
78 Number Properties	0- 3	4	5
80 Common Scales	0- 3	4	5
86 Geometry/Measurements/Graphs	0- 6	7- 8	9-11
88 Story Problems	0- 3	4	5
Raw Score (Total)	0-26	33-34	41-45
Percentile Rank	1-76 (1-61)	92-94 (81-83)	99-99 (97-99)
Grade Equivalent	1.3-6.3	7.6-7.8	9.7-12.2
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 5	6	7- 9
94 Table	0- 3	4	5
95 Library Catalog Cards	0- 3	4	5- 6
Raw Score (Total)	0-14	18	22-25
Percentile Rank	1-36 (1-27)	54 (42)	80-98 (70-97)
Grade Equivalent	1.3-4.2	5.3	7.7-11.4

Table 50

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 16 — Form D

Grade 6

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-52* (1-44)**	65-75 (57-66)	88-99 (81-98)
Grade Equivalent	2.0-6.2	7.2-8.0	9.0-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 3	4	5- 6
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 8
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 7
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5- 6
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-21	27	33-40
Percentile Rank	1-57 (1-48)	77 (68)	94-99 (89-99)
Grade Equivalent	2.0-6.5	8.0	10.7-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 4	5	6- 8
46 Morphemic Units	0- 3	4	5
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-33 (1-31)	66 (63)	91-98 (88-96)
Grade Equivalent	2.0-5.0	8.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
51 Punctuation - End Marks	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-39 (1-33)	70 (61)	96 (94)
Grade Equivalent	2.0-5.0	8.0	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 50

Level 16 — Form D (Cont'd.)

Grade 6

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
59 Usage - Adjectives	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
63 Sentence Structure - Complete/Incomplete/Run-on	0- 3	4	5
67 Paragraph Organization - Sequence/Topic Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-26 (1-23)	65 (55)	97-99 (94-99)
Grade Equivalent	2.0-4.1	7.2	12.5-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-79 (1-59)	92 (74)	97-99 (85-99)
Grade Equivalent	2.0-7.3	8.0	8.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5- 6
74 Number Theory	0- 3	4	5- 6
76 Number Sentences	0- 3	4	5- 6
78 Number Properties	0- 2	3	4
83 Geometry/Measurement	0- 3	4	5- 6
84 Graphs	0- 4	5	6- 8
88 Story Problems	0- 5	6	7- 9
Raw Score (Total)	0-23	30	37-45
Percentile Rank	1-60 (1-48)	84 (72)	96-99 (90-99)
Grade Equivalent	2.0-6.6	8.0	9.7-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 2	3	4
95 Library Catalog Cards	0- 3	4	5- 6
96 Diagram	0- 3	4	5
Raw Score (Total)	0-14	19	24-25
Percentile Rank	1-34 (1-26)	65 (56)	98-99 (95-99)
Grade Equivalent	2.0-4.8	7.4	12.1-12.9

Table 51

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 17 — Form D

Grade 7

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-72* (1-65)**	83-89 (76-83)	95-99 (93-99)
Grade Equivalent	2.0-8.6	9.8-10.4	11.9-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 3	4	5- 6
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 8
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
43 Critical Comprehension - Techniques of Persuasion	0- 4	5	6- 7
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-58 (1-51)	79 (71)	94-99 (90-99)
Grade Equivalent	2.0-7.8	9.6	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5- 6
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 4	5	6- 7
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-40 (1-39)	66 (65)	89-97 (88-97)
Grade Equivalent	2.0-6.0	9.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 3	4	5
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 2	3	4
Raw Score (Total)	0-13	18	23
Percentile Rank	1-48 (1-43)	80 (74)	99 (98)
Grade Equivalent	2.0-6.7	10.9	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 51

Level 17 — Form D (Cont'd.)

Grade 7

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-37 (1-33)	75 (68)	99-99 (97-99)
Grade Equivalent	2.0-5.9	9.3	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-78 (1-64)	87 (75)	93-99 (84-99)
Grade Equivalent	2.0-8.2	9.0	10.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 3	4	5- 6
74 Number Theory	0- 3	4	5
79 Number Sentences/Properties	0- 2	3	4
81 Geometry	0- 3	4	5
82 Measurement	0- 6	7- 8	9-11
87 Functions and Graphs	0- 4	5	6- 7
88 Story Problems	0- 4	5	6- 7
Raw Score (Total)	0-25	32-33	40-45
Percentile Rank	1-81 (1-73)	93-94 (88-89)	99-99 (99-99)
Grade Equivalent	2.0-9.0	10.9-11.1	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 3	4	5
95 Library Catalog Cards	0- 2	3	4
96 Diagram	0- 3	4	5- 6
Raw Score (Total)	0-14	19	24-25
Percentile Rank	1-45 (1-38)	75 (68)	98-99 (98-99)
Grade Equivalent	2.0-6.5	9.0	12.9-12.9

Table 52

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form D

Grade 8

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-62* (1-55)**	76-84 (68-76)	92-99 (88-99)
Grade Equivalent	2.0-9.0	10.3-11.0	12.9-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 7
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5- 6
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-52 (1-44)	70 (62)	89-99 (83-99)
Grade Equivalent	2.0-8.2	10.1	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 4	5	6- 7
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-52 (1-52)	80 (80)	94-98 (94-98)
Grade Equivalent	2.0-8.5	12.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-35 (1-30)	68 (61)	98 (97)
Grade Equivalent	2.0-6.3	10.4	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 52

Level 18 — Form D (Cont'd.)

Grade 8

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-25 (1-22)	57 (49)	95-99 (91-99)
Grade Equivalent	2.0-5.6	8.6	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-70 (1-63)	80 (73)	88-99 (82-99)
Grade Equivalent	2.0-10.5	12.5	12.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 5	6	7- 9
77 Number Theory/Sentences	0- 4	5	6- 7
81 Geometry	0- 3	4	5- 6
82 Measurement	0- 6	7	8-10
87 Functions and Graphs	0- 3	4	5- 6
88 Story Problems	0- 4	5	6- 7
Raw Score (Total)	0-25	31	37-45
Percentile Rank	1-74 (1-65)	89 (81)	97-99 (92-99)
Grade Equivalent	2.0-10.0	12.2	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 3	4	5
97 Form	0- 3	4	5
98 Readers' Guide	0- 3	4	5
Raw Score (Total)	0-15	20	25
Percentile Rank	1-34 (1-28)	73 (66)	99 (99)
Grade Equivalent	2.0-6.9	10.4	12.9

Table 53

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form D

Grade 9

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-47* (1-44)**	61-71 (58-66)	84-99 (80-98)
Grade Equivalent	2.0-9.0	10.3-11.0	12.9-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 7
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 7
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5- 6
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-41 (1-38)	60 (55)	82-99 (78-99)
Grade Equivalent	2.0-8.2	10.1	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 4	5	6- 7
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 3	4	5- 6
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-42 (1-45)	71 (74)	90-97 (91-97)
Grade Equivalent	2.0-8.5	12.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 2	3	4
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 3	4	5
Raw Score (Total)	0-13	18	23
Percentile Rank	1-28 (1-26)	58 (55)	96 (95)
Grade Equivalent	2.0-6.3	10.4	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 53

Level 18 — Form D (Cont'd.)

Grade 9

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-19 (1-19)	47 (42)	90-99 (87-99)
Grade Equivalent	2.0-5.6	8.6	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-55 (1-53)	67 (64)	78-99 (74-99)
Grade Equivalent	2.0-10.5	12.5	12.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 5	6	7- 9
77 Number Theory/Sentences	0- 4	5	6- 7
81 Geometry	0- 3	4	5- 6
82 Measurement	0- 6	7	8-10
87 Functions and Graphs	0- 3	4	5- 6
88 Story Problems	0- 4	5	6- 7
Raw Score (Total)	0-25	31	37-45
Percentile Rank	1-59 (1-54)	78 (71)	91-99 (86-99)
Grade Equivalent	2.0-10.0	12.2	12.9-12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5
93 Map	0- 3	4	5
94 Table	0- 3	4	5
97 Form	0- 3	4	5
98 Readers' Guide	0- 3	4	5
Raw Score (Total)	0-15	20	25
Percentile Rank	1-27 (1-25)	64 (58)	99 (98)
Grade Equivalent	2.0-6.9	10.4	12.9

Table 54

Mastery Criterion for Each Objective and Corresponding Percentile Ranks and Grade Equivalents
Level 19 — Form D

Grade 10

Objectives	Mastery Criterion		
	N@	P	M
Reading Vocabulary			
32 Same Meaning	0-12	13-15	16-20
33 Opposite Meaning	0- 3	4	5
34 Multimeaning	0- 3	4	5
Raw Score (Total)	0-18	21-23	26-30
Percentile Rank	1-74* (1-67)**	85-90 (80-86)	96-99 (94-99)
Grade Equivalent	2.0-12.7	12.9-12.9	12.9-12.9
Reading Comprehension			
36 Literal Comprehension - Recall of Facts	0- 4	5	6- 7
38 Interpretive Comprehension - Inferred Meaning	0- 4	5	6- 8
39 Interpretive Comprehension - Character Analysis	0- 4	5	6- 7
40 Interpretive Comprehension - Figurative Language	0- 4	5	6- 7
42 Critical Comprehension - Author Attitude/Position	0- 3	4	5
43 Critical Comprehension - Techniques of Persuasion	0- 3	4	5- 6
Raw Score (Total)	0-22	28	34-40
Percentile Rank	1-47 (1-42)	69 (63)	92-99 (87-99)
Grade Equivalent	2.0-10.0	12.9	12.9-12.9
Spelling			
44 Consonant Phonemes/Graphemes	0- 3	4	5
45 Vowel Phonemes/Graphemes	0- 3	4	5
46 Morphemic Units	0- 4	5	6- 8
Raw Score (Total)	0-10	13	16-18
Percentile Rank	1-55 (1-54)	76 (76)	91-97 (90-96)
Grade Equivalent	2.0-10.5	12.5	12.5-12.5
Language Mechanics			
48 Capitalization - I/Proper Nouns/Adjectives	0- 3	4	5
50 Capitalization - Beginning Words/Titles	0- 2	3	4
52 Punctuation - End Marks/Colon/Semicolon	0- 3	4	5
53 Punctuation - Comma	0- 3	4	5
54 Punctuation - Quotation Marks	0- 2	3	4
Raw Score (Total)	0-13	18	23
Percentile Rank	1-43 (1-39)	77 (72)	98 (96)
Grade Equivalent	2.0-8.9	12.9	12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 54

Level 19 — Form D (Cont'd.)

Grade 10

Objectives	Mastery Criterion		
	N	P	M
Language Expression			
57 Usage - Pronouns	0- 3	4	5
58 Usage - Verbs	0- 3	4	5
60 Sentence Structure - Subjects/Verbs	0- 3	4	5- 6
62 Sentence Structure - Modifying/Transitional Words	0- 3	4	5- 6
64 Sentence Structure - Verbosity/Repetition	0- 3	4	5
65 Sentence Structure - Misplaced Modifiers/Nonparallel	0- 3	4	5
68 Paragraph Organization - Sequence/Topic, Concluding Sentence	0- 3	4	5- 6
Raw Score (Total)	0-21	28	35-38
Percentile Rank	1-33 (1-30)	67 (61)	96-99 (93-99)
Grade Equivalent	2.0-8.1	12.2	12.9-12.9
Mathematics Computation			
69 Addition	0- 6	7	8-10
70 Subtraction	0- 6	7	8-10
71 Multiplication	0- 6	7	8-10
72 Division	0- 6	7	8-10
Raw Score (Total)	0-24	28	32-40
Percentile Rank	1-47 (1-47)	60 (59)	73-99 (70-99)
Grade Equivalent	2.0-10.5	12.5	12.5-12.5
Mathematics Concepts and Applications			
73 Numeration	0- 4	5	6- 7
74 Number Theory	0- 3	4	5- 6
79 Number Sentences/Properties	0- 4	5	6- 7
81 Geometry	0- 3	4	5
82 Measurement	0- 3	4	5- 6
87 Functions and Graphs	0- 3	4	5- 6
88 Story Problems	0- 4	5	6- 8
Raw Score (Total)	0-24	31	38-45
Percentile Rank	1-60 (1-56)	82 (77)	94-99 (91-99)
Grade Equivalent	2.0-11.4	12.9	12.9
Reference Skills			
92 Dictionary Page	0- 3	4	5- 6
93 Map	0- 3	4	5
97 Form	0- 4	5	6- 8
98 Readers' Guide	0- 3	4	5- 6
Raw Score (Total)	0-13	17	21-25
Percentile Rank	1-32 (1-28)	58 (50)	83-99 (76-99)
Grade Equivalent	2.0-8.1	10.7	12.9-12.9

APPENDIX D

Table 55

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 13 — Form D

Grade 3

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-43	57	71-73
	Percentile Rank	1-46* (1-28)**	72 (53)	99-99 (97-99)
	Grade Equivalent	0.1-2.9	3.8	6.9-8.3
Total Language				
	Raw Score (Total)	0-25	34	43-44
	Percentile Rank	1-32 (1-18)	63 (44)	95-97 (87-92)
	Grade Equivalent	0.1-2.5	3.5	6.4-7.1
Total Mathematics				
	Raw Score (Total)	0-49	61	73-85
	Percentile Rank	1-82 (1-47)	95 (69)	99-99 (88-99)
	Grade Equivalent	0.1-3.6	4.3	5.1-7.3
Total Battery				
	Raw Score (Total)	0-124	162	200-216
	Percentile Rank	1-54 (1-27)	82 (53)	99-99 (89-99)
	Grade Equivalent	0.1-3.2	3.8	5.4-6.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 56

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 14 — Form D

Grade 4

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	48-50	58-70
	Percentile Rank	1-66* (1-52)**	79-82 (65-68)	92-99 (82-99)
	Grade Equivalent	1.3-4.8	5.5-5.7	6.7-12.2
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-42 (1-31)	80 (65)	99-99 (97-99)
	Grade Equivalent	1.3-3.8	6.0	10.9-12.2
Total Mathematics				
	Raw Score (Total)	0-49	62	75-85
	Percentile Rank	1-73 (1-49)	92 (73)	99-99 (92-99)
	Grade Equivalent	1.3-4.7	5.6	6.7-9.8
Total Battery				
	Raw Score (Total)	0-133	169-171	207-234
	Percentile Rank	1-63 (1-44)	87-88 (69-71)	98-99 (92-99)
	Grade Equivalent	1.3-4.5	5.5-5.6	7.3-12.1

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 57

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 15 — Form D

Grade 5

Subtests	Mastery Criterion		
	N@	P	M
Total Reading			
Raw Score (Total)	0-40	48-50	58-70
Percentile Rank	1-56* (1-45)**	73-77 (62-66)	90-99 (82-99)
Grade Equivalent	1.3-5.4	6.4-6.6	8.0-12.2
Total Language			
Raw Score (Total)	0-34	46	58-61
Percentile Rank	1-29 (1-23)	61 (51)	97-99 (93-99)
Grade Equivalent	1.3-3.9	5.9	10.8-12.2
Total Mathematics			
Raw Score (Total)	0-50	61-62	73-85
Percentile Rank	1-75 (1-57)	92-93 (77-79)	99-99 (95-99)
Grade Equivalent	1.3-6.0	7.1-7.3	8.3-12.2
Total Battery			
Raw Score (Total)	0-134	168-171	205-234
Percentile Rank	1-53 (1-40)	81-83 (66-68)	98-99 (94-99)
Grade Equivalent	1.3-5.2	6.5-6.7	8.5-12.2

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 58

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 16 — Form D

Grade 6

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-39	48-50	59-70
	Percentile Rank	1-56* (1-46)**	74-77 (63-67)	92-99 (87-99)
	Grade Equivalent	2.0-6.4	7.8-8.0	10.0-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-30 (1-26)	69 (58)	99-99 (96-99)
	Grade Equivalent	2.0-4.5	7.5	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-47	58	69-85
	Percentile Rank	1-71 (1-54)	89 (74)	97-99 (89-99)
	Grade Equivalent	2.0-6.9	8.0	9.0-12.5
Total Battery				
	Raw Score (Total)	0-130	165-167	202-234
	Percentile Rank	1-52 (1-41)	81-83 (68-70)	98-99 (93-99)
	Grade Equivalent	2.0-6.2	7.8-7.9	10.0-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 59

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 17 — Form D

Grade 7

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	49-51	60-70
	Percentile Rank	1-64* (1-57)**	82-85 (74-78)	96-99 (94-99)
	Grade Equivalent	2.0-8.0	9.6-10.0	12.9-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-40 (1-36)	79 (73)	99-99 (99-99)
	Grade Equivalent	2.0-6.3	10.1	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-49	60-61	72-85
	Percentile Rank	1-80 (1-69)	91-92 (83-84)	98-99 (94-99)
	Grade Equivalent	2.0-8.7	10.0-10.0	12.5-12.5
Total Battery				
	Raw Score (Total)	0-133	168-171	206-234
	Percentile Rank	1-65 (1-55)	87-89 (78-80)	99-99 (98-99)
	Grade Equivalent	2.0-8.0	9.7-10.0	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 60

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form D

Grade 8

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	49-51	60-70
	Percentile Rank	1-56* (1-49)**	74-77 (66-69)	93-99 (87-99)
	Grade Equivalent	2.0-8.6	10.1-10.5	12.9-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-28 (1-25)	64 (56)	98-99 (96-99)
	Grade Equivalent	2.0-6.0	9.4	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-49	59	69-85
	Percentile Rank	1-72 (1-63)	86 (78)	95-99 (90-99)
	Grade Equivalent	2.0-10.0	11.9	12.5-12.5
Total Battery				
	Raw Score (Total)	0-133	167-169	203-234
	Percentile Rank	1-55 (1-47)	80-82 (72-73)	97-99 (94-99)
	Grade Equivalent	2.0-8.5	10.7-10.8	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 61

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 18 — Form D

Grade 9

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	49-51	60-70
	Percentile Rank	1-43* (1-39)**	61-65 (56-60)	85-99 (81-99)
	Grade Equivalent	2.0-8.6	10.1-10.5	12.9-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-21 (1-20)	52 (48)	96-99 (94-99)
	Grade Equivalent	2.0-6.0	9.4	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-49	59	69-85
	Percentile Rank	1-57 (1-52)	74 (68)	87-99 (82-99)
	Grade Equivalent	2.0-10.0	11.9	12.5-12.5
Total Battery				
	Raw Score (Total)	0-133	167-169	203-234
	Percentile Rank	1-40 (1-38)	67-69 (62-63)	93-99 (89-99)
	Grade Equivalent	2.0-8.5	10.7-10.8	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.

Table 62

Mastery Criterion for Each Subtest and Corresponding Percentile Ranks and Grade Equivalents
Level 19 — Form D

Grade 10

Subtests		Mastery Criterion		
		N@	P	M
Total Reading				
	Raw Score (Total)	0-40	49-51	60-70
	Percentile Rank	1-59* (1-52)**	79-83 (73-77)	96-99 (93-99)
	Grade Equivalent	2.0-11.0	12.9-12.9	12.9-12.9
Total Language				
	Raw Score (Total)	0-34	46	58-61
	Percentile Rank	1-37 (1-32)	73 (67)	98-99 (96-99)
	Grade Equivalent	2.0-8.4	12.9	12.9-12.9
Total Mathematics				
	Raw Score (Total)	0-48	59	70-85
	Percentile Rank	1-54 (1-51)	72 (69)	88-99 (84-99)
	Grade Equivalent	2.0-10.9	12.5	12.5-12.5
Total Battery				
	Raw Score (Total)	0-132	167-169	204-234
	Percentile Rank	1-51 (1-46)	77-79 (72-74)	96-99 (93-99)
	Grade Equivalent	2.0-10.2	12.9-12.9	12.9-12.9

@N Indicates Non-Mastery; P indicates Partial Mastery; and M indicates Mastery.
* Indicates beginning of year percentile ranks.
** Numerals in parentheses indicate end of year percentile ranks.